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EXPANDED SITE INVESTIGATION
STATELINE DUMP SITE
MODOC COUNTY, CALIFORNIA
Solicitation No. 4A651-RFP9-340039

CH2M HILL

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1991

EXPANDED SITE INVESTIGATION
STATELINE DUMP SITE
MODOC COUNTY, CALIFORNIA
Solicitation No. 4A651-RFP9-340039

Prepared for:

U.S. Department of the Interior,
Bureau of Land Management
Denver, Colorado

May 1991

EXECUTIVE SUMMARY

An expanded site investigation was performed at the Stateline Dump Site near Tulelake, California. Four monitoring wells were installed at the site to investigate any potential groundwater contamination. Sediment samples from the site were collected and analyzed. Offsite groundwater and surface-water samples were collected and analyzed to investigate any potential contamination moving offsite. Infiltration tests performed on soil and waste materials at the dumpsite suggest that the infiltration rate of the soil ranges from 0.2 to 5.3 in/hr, and the infiltration rate of the waste materials ranges from 15 to 57 in/hr. Results of this investigation suggest that the waste materials onsite have not released significant levels of contamination into the sediments, surface water, or groundwater in the vicinity of the site.

The site was rescored using the U.S. Environmental Protection Agency's (EPA) Hazard Ranking System (HRS). The new score of 2.5 indicated the site is not a candidate for EPA's National Priorities List (NPL). Therefore, it is recommended that the site be closed in place or removed to a permitted landfill according to appropriate state statutes.

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Chapter 1
INTRODUCTION

SITE BACKGROUND

The Stateline Dump Site is an unauthorized solid waste disposal site located on Bureau of Land Management (BLM) property in Modoc County, California.

SITE LOCATION

The site is located in Lot 4 of Section 18, Township 48 North, Range 6 East, Mt. Diablo Meridian. The site is located approximately 4 miles southeast of the town of Malin, Oregon, and approximately 10 miles east of the town of Tulelake, California. The general site location is shown in Figure 1.

The site is located in the foothills which rise up from the Tulelake Valley floor at an approximate elevation of 4300 feet mean sea level (msl). This is approximately 220 feet above the elevation of the valley floor, at approximately 4080 feet msl.

SITE DESCRIPTION

The unauthorized dumpsite was fenced by the BLM in 1987. The area within the fence occupies approximately 3 acres, and the unauthorized disposal area is approximately 0.5 acre. Access to the site is via a paved county road (Loveness Road) and then a short unimproved road. The site is visible from the county road. Material was apparently deposited into the ravine which bisects the parcel. The site includes a turnaround area, refuse fill, water conveyance ditch, and a perimeter fence. Site features are shown on Figure 2.

The landfill appears to have been managed in the past. The dropoff/turnaround area has been graded, and portions of the refuse appear to have been covered. There was no visible evidence that the facility had been operated as a burn dump. However, the apparent lack of domestic refuse in the older layers may be due to operations as a burn dump in the past.

A diversion ditch exists above the site (see Figure 2); however, it is unlikely that the ditch was constructed specifically to manage surface water at the site. The ditch is connected to an upgradient manmade pond, which appears to be associated with the old lumber mill near the site. Based on site aerial photography, the ditch appears to be part of a larger surface-water management or conveyance system. The ditch has likely diverted all surface runoff that may have been generated upgradient of the ditch and limited surface flow into the site. No evidence of any recent water flow was found.

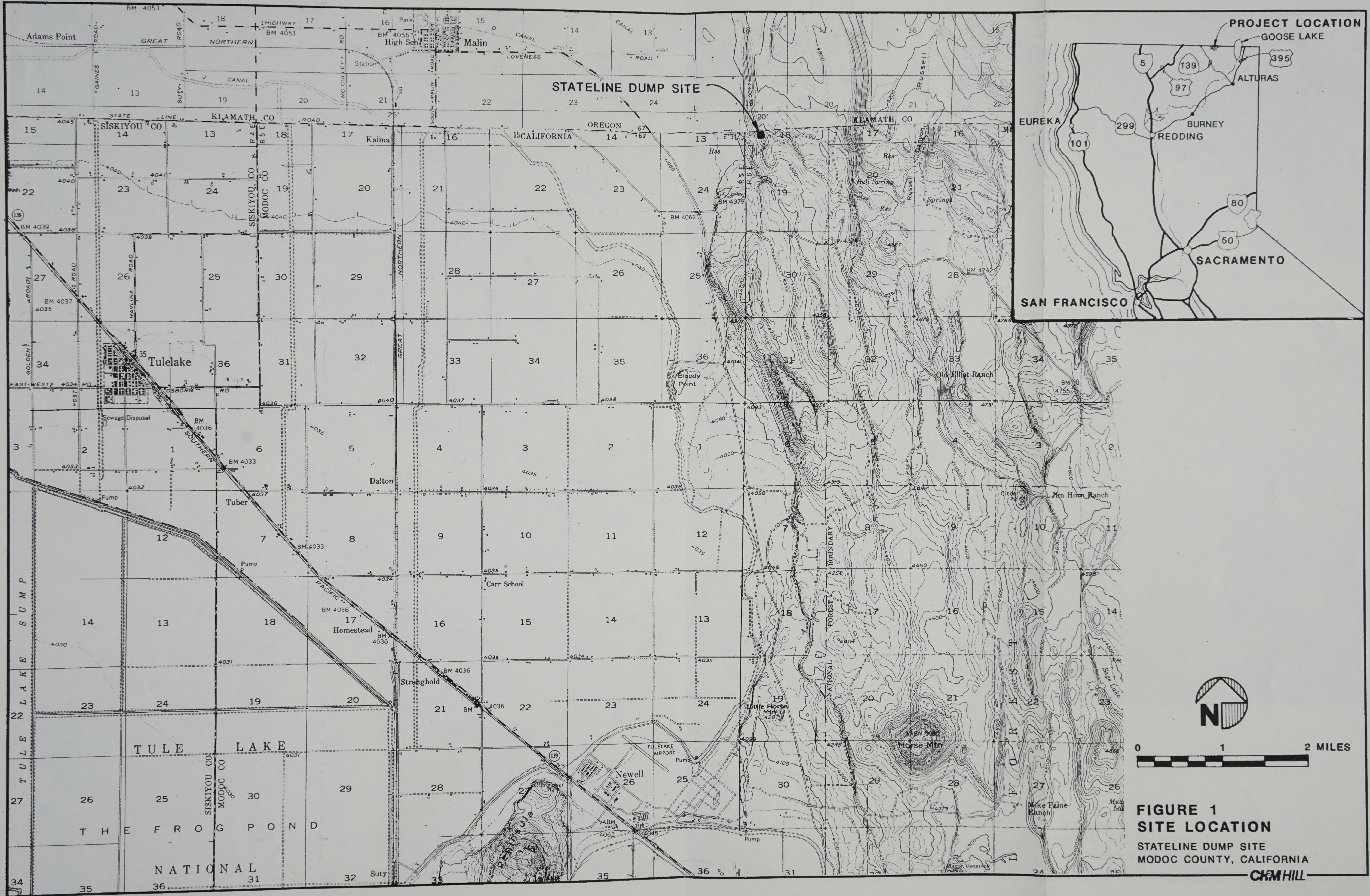

FIGURE 1
SITE LOCATION
STATELINE DUMP SITE
MODOC COUNTY, CALIFORNIA

CH2M HILL

RDD28631.AO NOVEMBER 1989

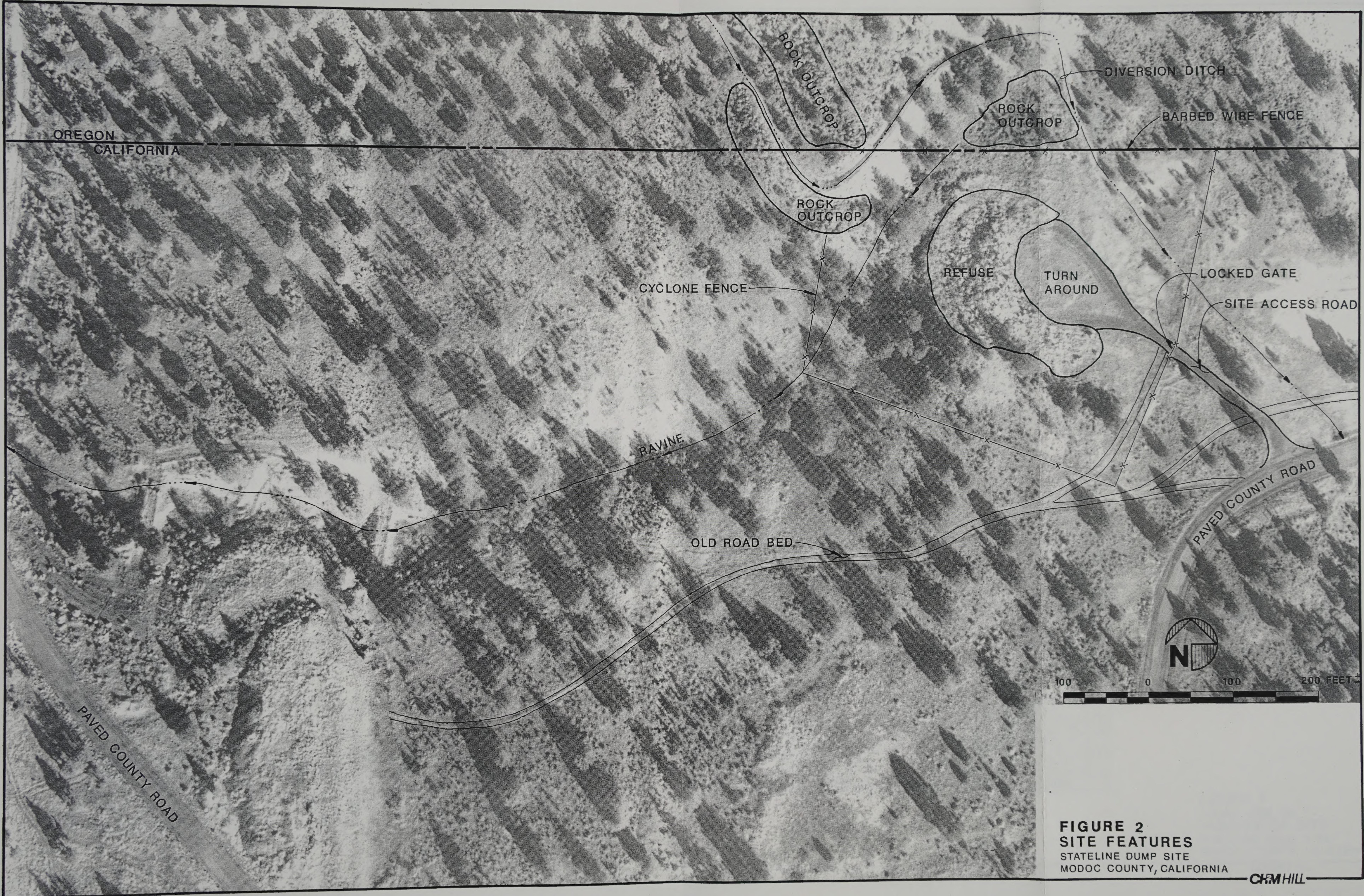

FIGURE 2
SITE FEATURES
STATELINE DUMP SITE
MODOC COUNTY, CALIFORNIA

CH2M HILL

RDD28361.AO MARCH 1991

TOPOGRAPHY

The site faces generally west to southwest. The parcel topography is dominated by a shallow ravine that bisects the site from the east to the west. The ravine is bordered to the north by outcrops of basalt and to the south by refuse fill. The presence of large basalt rocks in the ravine bottom and at the base of the south slope indicates that the south slope of the ravine may also be bordered by basalt formations under the existing fill. Prior to deposition of the refuse fill, the ravine likely sloped at approximately 20 percent on the west. The north slope of the ravine varies from 45 to 60 percent. The ravine opens approximately 100 feet below the refuse to a constant west-facing slope of approximately 12 percent. Site topography is shown on Figure 3. Detailed topographic data are presented in Chapter 9.

SITE HISTORY

The origin and history of the Stateline Dump Site is largely unknown. The BLM restricted access to the site with a cyclone fence in 1987, and the site has not been used for the disposal of waste materials since that time. Photos of the site taken in 1972 show a sawmill operating at the base of the hill off Loveness Road and directly below the dumpsite.

Personal communications with persons familiar with the area indicate that the Loveness family operated a sawmill at the site. The mill changed hands in the 1980s, and was eventually closed in about 1985. The mill is reported to have cut pine, white fir, and cedar. From the 1972 photo, the facility appears to have included a sawmill, planer mill, and log deck area. Dry kilns were reported to have been built in the late 1970s. The mill facility is reported to have included a number of trailer houses and mobile homes that housed mill employees and their families. The trailers were removed following closure of the mill.

Refuse at the site, especially the older layers, is indicative of typical lumber mill waste materials: waste strapping, oil and lubrication fluid drums, sheet metal sections, and old equipment. Typical log deck waste material, consisting of soil and wood and bark waste pieces, is identifiable elsewhere on the BLM parcel, closer to the paved road and mill. Contacts indicate that the disposal site was not widely used by persons in the communities of Malin, Tulelake, or the surrounding area, as both communities operated solid waste disposal facilities.

The deep subsurface soils, nearby bodies of surface water, and the groundwater have not been previously characterized.

An accurate hazardous waste quantity determination with existing data is not possible. An accurate estimate of the volume of solid and hazardous waste is also not possible because there is no available detailed topography prior to disposal, and there are no disposal records. The 1988 report estimated that approximately 16,500 cubic yards of refuse accumulated at the Stateline Dump Site over an approximately 20-year period.

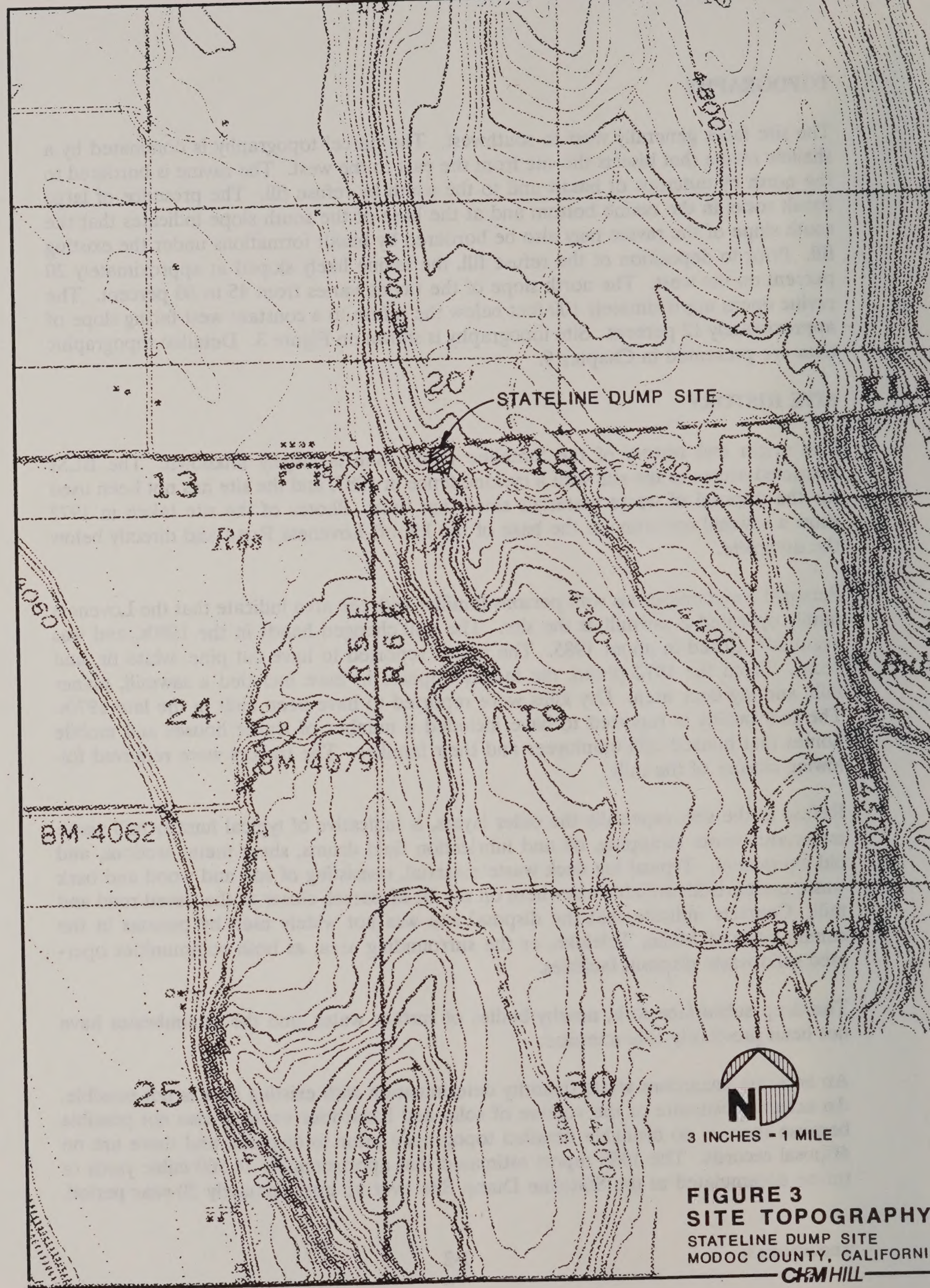

FIGURE 3
SITE TOPOGRAPHY
STATELINE DUMP SITE
MODOC COUNTY, CALIFORNI

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This assumed the waste was 10 yards deep, 66 yards wide, and 23 yards long. Based on new topographic mapping and an estimated average depth of 5 feet, the volume of waste is estimated to be less than 7,000 cubic yards.

The presence of hot spots or areas with significantly greater contaminant concentrations than those found in the 1988 report cannot be ruled out. However, the bulk of the waste present at the site is nonhazardous municipal debris (Weston, 1988).

Each of the encountered groups of contaminants are reported common at landfills. Volatile organic compounds included benzene and toluene, which are common petroleum product constituents. Phthalates are common in a variety of plastics. Organochlorine pesticides were widely used in the past, and although their use has been discontinued, they are very persistent.

NATURE AND EXTENT OF PROBLEM

The BLM performed a site inspection in July 1987. During the inspection, BLM inventoried the identifiable potentially hazardous materials at the site. The results of this inventory are summarized in Table 1-1.

In August 1987, the EPA Region IX Technical Assistance Team (TAT) conducted a site visit. A summary of this visit indicated that the site was active. The TAT did not obtain any samples, but cited potential hazards. While the TAT was at the site, some local farmworkers attempted to dispose of a truckload of agricultural chemical containers.

In May 1988, an engineering consultant, under contract with the BLM, conducted a preliminary investigation at the site. The work was conducted pursuant to the EPA guidelines for site investigations. The investigation was to identify, classify, and rank the site as potentially hazardous and to provide recommendations for actions necessary to remediate threats to public health and the environment. A total of six shallow subsurface soil samples were collected for analysis. No other onsite sampling was conducted. This information, combined with background data, was recorded on U.S. EPA Site Investigation Report forms and was used to score the site using the HRS. Site conditions during the investigation were documented with photographs and field notes.

The sampling results suggest that an imminent threat to the environment is not posed by the site. The presence of low concentrations of volatile organics (benzene [9 ppb], toluene [58 ppb]), organochlorine pesticides (4,4'-DDE [157 ppb], 4,4'-DDT [0.1 ppb]), and phthalates was established in the shallow subsurface soils at the site. Elevated levels of heavy metals are also present. According to the 1988 report, "An imminent environmental threat is not posed by these contaminants at these concentrations. However, the long-term environmental threat cannot be evaluated since little is known

Table 1-1
Waste Materials Observed Onsite
BLM Inspection
July 1987

Material	DOT Hazardous Material Guide Number
Container Material[a]	
Ethylene glycol	26
Denatured alchohol solvent	26
Kerosene	27
Butyl acetate	26
Calcium hypochlorite (dry, 70% available chlorine)	45
Acetone	26
Paint thinner	26
Petroleum oil	27
Ether	26
Insecticides (miscellaneous)	27
Arsenic pesticide	55
Eptan[b]	55
Roundup[b]	55
Ethyl alcohol	26
Paint containers (miscellaneous)	26
Ammonia	15
Aerosol cans (miscellaneous)	16
Phenylphenol (phenyl pesticide)	55-28
Engine starting fluid	22
Solid/Bulk Materials	
Tires	32
Plastics	37
Metals (miscellaneous)	
Asbestos	31
Spun fiberglass (filters)	32

Table 1-1
Waste Materials Observed Onsite
BLM Inspection
July 1987

Material	DOT Hazardous Material Guide Number
Hot water heaters	
Car bodies	
55-gallon drums (miscellaneous)	
Mattresses	
Refrigerators	
Deer carcasses	
Auto batteries	60
Battery fluids (acid)	39
Lye (solid)	60
Fertilizer, ammonia nitrate	35

[a] Containers inspected at this site varied greatly in age and structural integrity. Container residue ranged from zero residue to partially full.

[b] Registered trademark.

about the quantity of hazardous materials that were deposited at the site, and the nature of the site geohydrology has not been determined."

The HRS score presented in the 1988 report was high, based on a potential threat to groundwater. However, there were no groundwater data available for the site during that study, and assumptions were made.

SUMMARY AND CONCLUSIONS

- No evidence of groundwater, sediment, or surface-water contamination related to the dumpsite was found during the site investigation.
- HRS scoring of the site conducted by CH2M HILL suggests that it will not score high enough to be included on the federal NPL.
- No remedial actions other than final closure of the landfill are recommended for the site.

Chapter 2
SITE CONDITIONS

DEMOGRAPHY

The Stateline Dump Site is located in a rural agricultural region. The nearest population centers are Tulelake, California, and Malin, Oregon. A low density of private residences is located on the Tulelake Valley floor roughly west of the site.

LAND USE

The dumpsite is situated in the approximate center of a 27-acre parcel that is bounded by the Oregon-California border to the north, private property to the west and south, and additional BLM holdings to the east and southeast. Land use in the vicinity of the site is shown on Figure 4. Predominant land uses include irrigated and dryland agriculture and rangeland for cattle. The Bonneville Power Administration, Malin Substation is located approximately 2 miles northeast of the site. The Oregon transmission line ties through the Malin Substation and is located approximately 2 miles east of the site. The powerlines run in a north-south direction. Parcel boundaries near the site are shown on Figure 5. Owners of record are listed in Table 2-1.

GEOLOGY

The Stateline Dump Site is located on the eastern margin of the Tulelake Valley. The geologic units that outcrop in the vicinity of the site include volcanic rocks and sedimentary deposits that range in age from Miocene to Holocene. The volcanic rocks make up the topographic highs which border the valley to the east and west. The sedimentary rocks are exposed in the dry lakebeds of the Tulelake Valley and extend beneath the Tulelake sump and other native and manmade surface-water impoundments. Numerous north-south trending normal faults have been mapped in the eastern transition region between lake deposits and the volcanic formations. Previous studies suggest that a fault zone may lie within 1-mile of the site (Hotchkiss, 1968).

The volcanic rocks consist of dark green to black olivine basalt and gray to black porphyritic basalt with pyroxene phenocrysts. Columnar jointing is weakly exhibited in this unit, which ranges in age from Miocene to Pliocene (Hotchkiss, 1968).

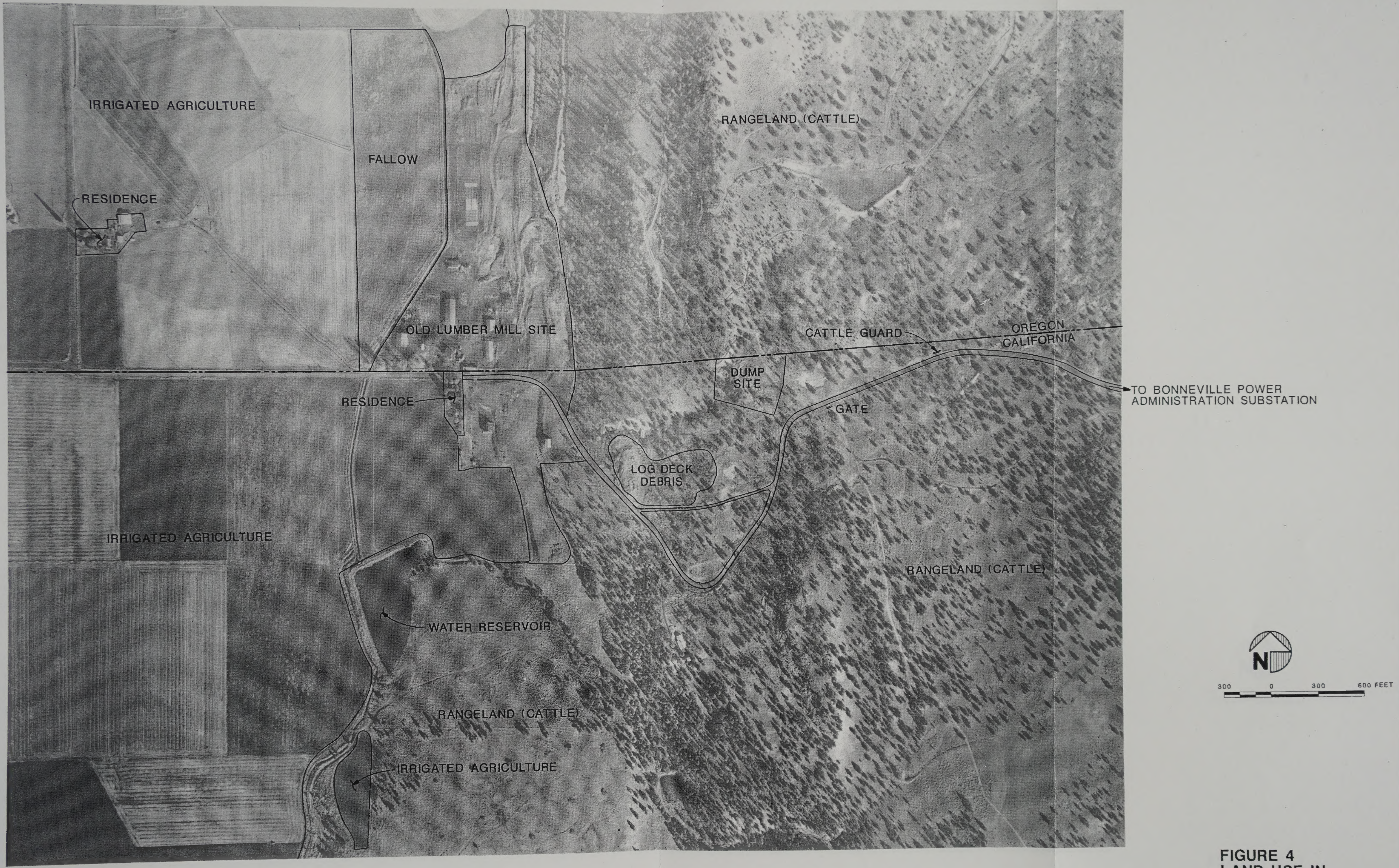

FIGURE 4
LAND USE IN VICINITY OF SITE
STATELINE DUMP SITE
MODOC COUNTY, CALIFORNIA
CH2M HILL

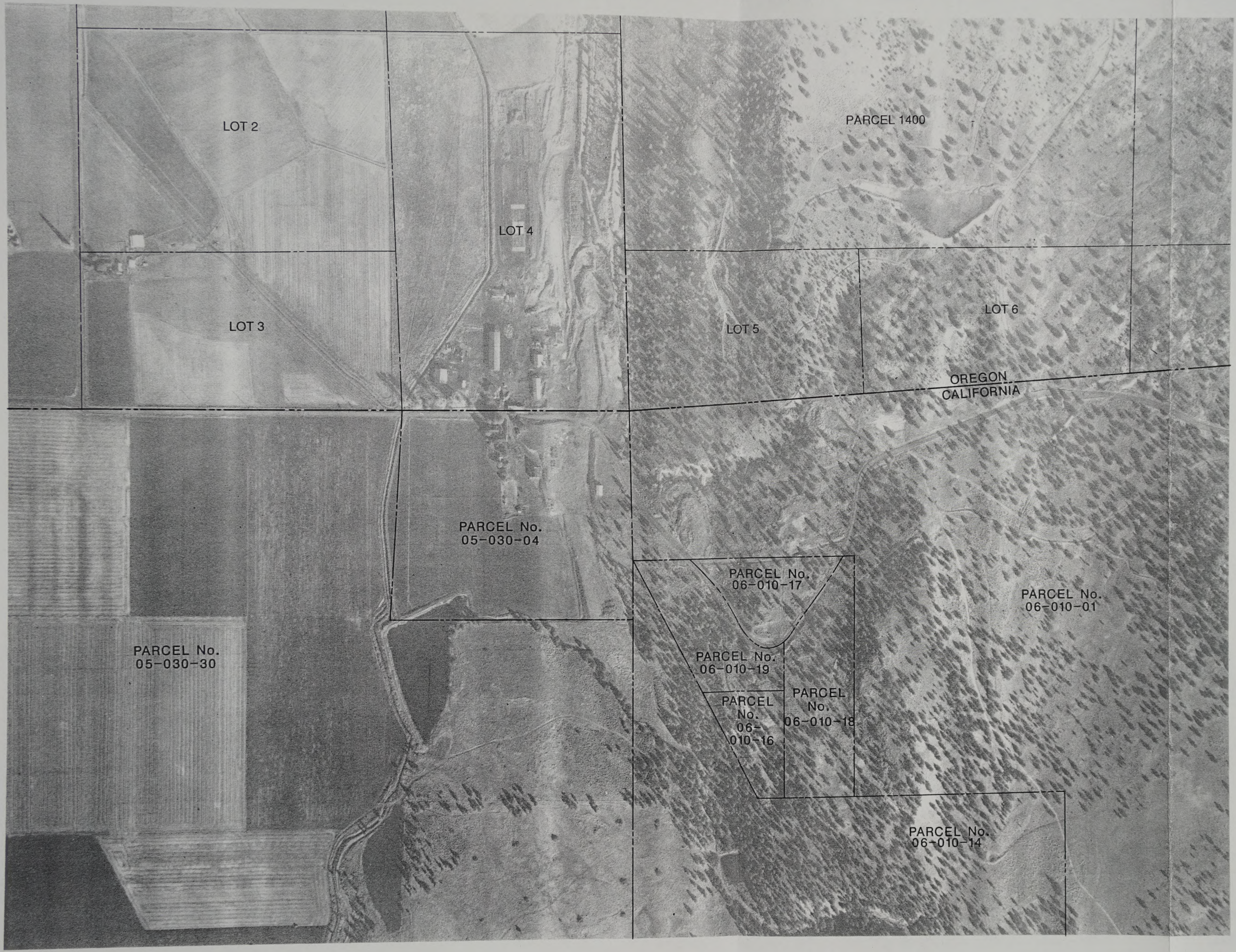

FIGURE 5
APPROXIMATE PARCEL BOUNDARIES
STATELINE DUMP SITE
MODOC COUNTY, CALIFORNIA
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RDD28361.AO MARCH 1991

Table 2-1
Parcel Ownership--1989

Parcel No.	Owners of Record	Land Use
05-030-04	John R. & Racheal M. Hall P.O. Box 504 Merrill, Oregon 97633	Rural/Homesite
05-030-30	Jerry Allan & Wenonah Lequieu P.O. Box 2 Malin, Oregon 97632	Dry farm/ pasture
06-01-201	U.S. Dept. of the Interior Bureau of Land Management	N/A
06-010-714	Leslie & LaVerna Lequieu P.O. Box 2 Malin, Oregon 97632	Grazing
06-010-16	Norman D. & Sharol L. Ensigner Star Route Box 12 Malin, Oregon 97632	Rural/Homesite
06-010-17	Grace E. Phillips Route 2 Box 176A Tulelake, California 96134	Grazing
06-010-18	Harlen K. and Barbra Loveness c/o W. D. Ganger P.O. Box 297 Merrill, Oregon 97633	Grazing
06-010-19	John R. & Racheal M. Hall P.O. Box 504 Merrill, Oregon 97633	Grazing
Lot 2 of 19-41-13	Winifred Mendiboure P.O. Box 23 Malin, Oregon 97632	Irrigated agriculture/ Homesite
Lot 3 of 19-41-13	Winifred Mendiboure P.O. Box 23 Malin, Oregon 97632	Irrigated agriculture/ Homesite
Lot 4	(Land) Spectrum Properties P.O. Box 4412 T-8 Portland, Oregon 97208 (Improvements) Holl Logging P.O. Box 84 Merrill, Oregon 97633	Light industry/ Agriculture

Table 2-1 Parcel Ownership--1989		
Parcel No.	**Owners of Record**	**Land Use**
Lot 5	U.S. Department of the Interior Bureau of Land Management	N/A
Lot 6	U.S. Department of the Interior Bureau of Land Management	N/A
1400	U.S. Department of the Interior Bureau of Land Management	N/A

The sedimentary deposits consist of sand, silt, clay, ash, and lenses of diatomaceous earth. Semiconsolidated shale and clay containing fossil clams, snails, and tules have also been observed. This unit interfingers with the basaltic units at the valley margins (Hotchkiss, 1968). Regional geology, centered on the area of the site, is shown on Figure 6.

CLIMATE

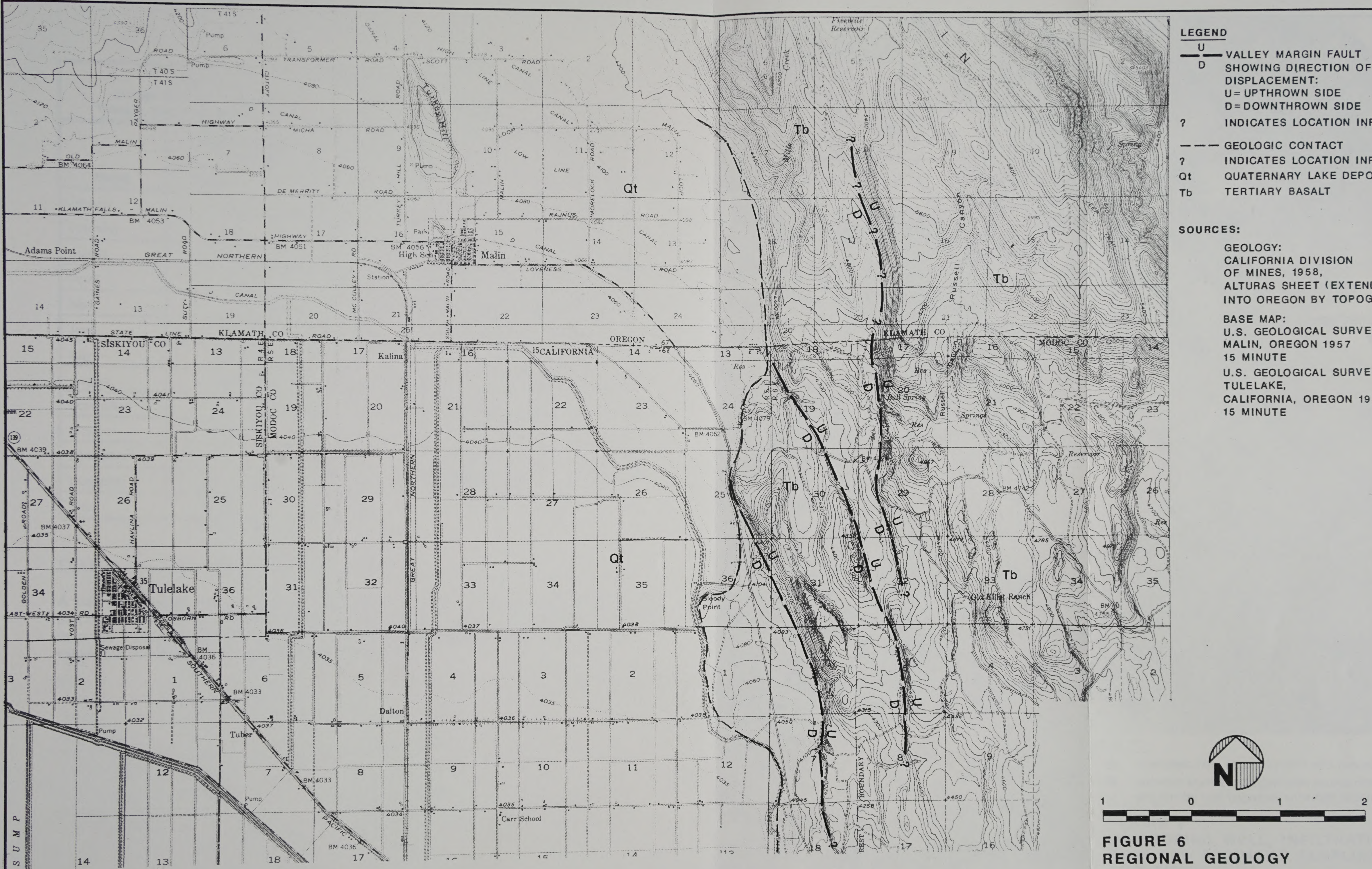
Data from the Tulelake, California, and Malin, Oregon, weather stations were obtained. The Tulelake and Malin stations are located approximately 10 miles and 6 miles, respectively, from the site. Data from each station are presented in monthly summaries published by the National Oceanic and Atmospheric Administration.

PRECIPITATION

The Stateline Dump Site area is in a moderately arid climate. Based on 18 years of climatological records from the Malin station, the average annual precipitation is approximately 12.6 inches. The Tulelake station has an average annual precipitation of 12.6 inches based on 58 years of climatological records. Precipitation typically falls in the form of snow during the winter months, with the average annual snowfall being approximately 20 inches. Assuming a typical snow density of 10 percent, approximately 2 inches of average annual precipitation occurs as snow. Average monthly precipitation data for the Tulelake and Malin stations are listed in Table 2-2.

TEMPERATURE

Winters can be relatively cold, with an average temperature of approximately 35°F. Summers are mild, and the average temperature is approximately 60°F. Average monthly temperature data for the Tulelake station are listed in Table 2-3. No temperature data are available from the Malin station.



LEGEND

U / D — VALLEY MARGIN FAULT SHOWING DIRECTION OF DISPLACEMENT:
U = UPTHROWN SIDE
D = DOWNTHROWN SIDE

? INDICATES LOCATION INFERRED

— — — GEOLOGIC CONTACT

? INDICATES LOCATION INFERRED

Qt QUATERNARY LAKE DEPOSITS

Tb TERTIARY BASALT

SOURCES:

GEOLOGY:
CALIFORNIA DIVISION
OF MINES, 1958,
ALTURAS SHEET (EXTENDED
INTO OREGON BY TOPOGRAPHY)

BASE MAP:
U.S. GEOLOGICAL SURVEY,
MALIN, OREGON 1957
15 MINUTE

U.S. GEOLOGICAL SURVEY,
TULELAKE,
CALIFORNIA, OREGON 1951
15 MINUTE

FIGURE 6
REGIONAL GEOLOGY

STATELINE DUMP SITE
MODOC COUNTY, CALIFORNIA

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Table 2-2
Average Monthly Precipitation for Tulelake, California, and Malin, Oregon

Month	Normal Precipitation (inches)	
	Tulelake	Malin
January	1.17	1.43
February	1.04	0.93
March	1.00	0.59
April	0.69	1.36
May	1.02	1.47
June	0.95	1.12
July	0.26	0.13
August	0.54	1.25
September	0.42	1.07
October	0.97	1.07
November	1.29	0.39
December	1.51	1.80
Total	10.86	12.61

Table 2-3
Average Monthly Temperatures at Tulelake, California

Month	Normal Temperature (°F)
January	29.7
February	34.8
March	38.0
April	43.7
May	52.0
June	59.0
July	65.3
August	63.1
September	57.5
October	48.0
November	37.6
December	30.8

EVAPORATION AND EVAPOTRANSPIRATION

A pan evaporation station is located at Tulelake, and the average annual amount of pan evaporation is approximately 51 inches. This value is more than four times greater than the average annual amount of precipitation. Average monthly pan evaporation values for the Tulelake station are listed in Table 2-4.

Table 2-4
Average Monthly Pan Evaporation at Tulelake, California

Month	Pan Evaporation (inches)
January	--
February	--
March	--
April	5.3
May	8.1
June	8.8
July	9.2
August	8.8
September	7.2
October	3.7
November	--
December	--
Total	51.1

Chapter 3
HAZARDOUS SUBSTANCES

TYPES OF WASTES

The debris present at the site appears to be stratified by type. The lower (earlier) layers of waste materials include metal strapping, equipment, sheet metal, and other debris of industrial origin. The lower layers of refuse contain very little visible domestic refuse. The upper, more recent, materials appear to be dominated by a more typical municipal waste stream including white goods, car bodies, oil and gasoline cans, paint cans, household pesticide containers, etc. No recent dumping was evident at the site.

BEHAVIOR OF WASTE COMPONENTS

The waste components previously detected at the site include low levels of pesticides, phthalates, and volatile organic compounds (VOCs). Pesticides have a high affinity for organic material and the presence of mill waste in the lower tier of refuse will act to retard the movement of pesticides out of the waste pile. VOCs and phthalates tend to be the most soluble of the detected compounds, and would likely be the first to leach into the underlying groundwater. None of these compounds were detected in the groundwater samples collected from the onsite monitoring wells, suggesting that waste components have not moved into the groundwater beneath the site. Rainfall is very low in the area, and calculations using the Hydrologic Evaluation of Landfill Performance (HELP) model indicate that very little, if any, leachate will be formed by rain falling on the waste materials. Model results indicate that the rainfall will be consumed by evapotranspiration before the waste materials become saturated. This condition acts to minimize the potential for waste components to migrate to groundwater.

INFILTRATION RATE OF WASTE MATERIALS

Infiltration tests were conducted at two locations in the lower layer of waste materials at the site. Test results indicate that the infiltration rate of the waste materials ranges from approximately 15 to 57 in/hr. Observations during the tests suggests that actual infiltration rates may be higher than the values calculated above. A complete description of the infiltration tests is presented in Chapter 4. The field data and calculations are presented in Appendix A.

Chapter 4
GROUNDWATER

SOILS

DESCRIPTION

Soil cover in the vicinity of the site is variable but generally thin. No detailed soil mapping of the site has been performed. General soil mapping of Modoc County performed by the USDA Soil Conservation Service (SCS) indicates that the hilly area in the vicinity of the dumpsite to be from the Bieber-Mesmo-Modoc association. The SCS provides generalized soil properties for these associations. Based on the SCS information, the suspected properties of the site soils follow.

These soils are described as occurring on nearly level to moderately sloping terraces. They are developed from alluvium of varying volcanic materials. The soils are well drained with a moderate erosion hazard. Depth varies from shallow to moderately deep. These soils consist of loam surface soils with brown, blocky, neutral clay subsoils. Hardpan generally occurs between 10 and 48 inches.

Onsite observations indicate that soil development varies significantly at the site. Soils in the upper slope areas are thin, with visible hardpan and rock at the surface. Soil in the draws and low areas where runoff has transported materials appears to be deeper. Most soil on the site has collected in the topographic lows and ranges from silty clay to silt. All soil horizons are extremely rocky with angular volcanic rock fragments. No soil sampling was conducted during this investigation.

SOIL INFILTRATION TESTS

Infiltration tests were conducted at the Stateline Dump to estimate the infiltration rate of the soils present at the site.

Method

All infiltration tests were conducted according to the ASTM Standard Test Method for Infiltration Rate of Soils in Field Using Double-Ring Infiltrometers (Designation D 3385-88).

Six infiltration tests were conducted at the site, four in native soil and two in waste materials. The native soil tests were conducted upgradient of the landfill since this is a potential recharge area for precipitation that may infiltrate the land surface and eventually contact waste materials (Figure 7).

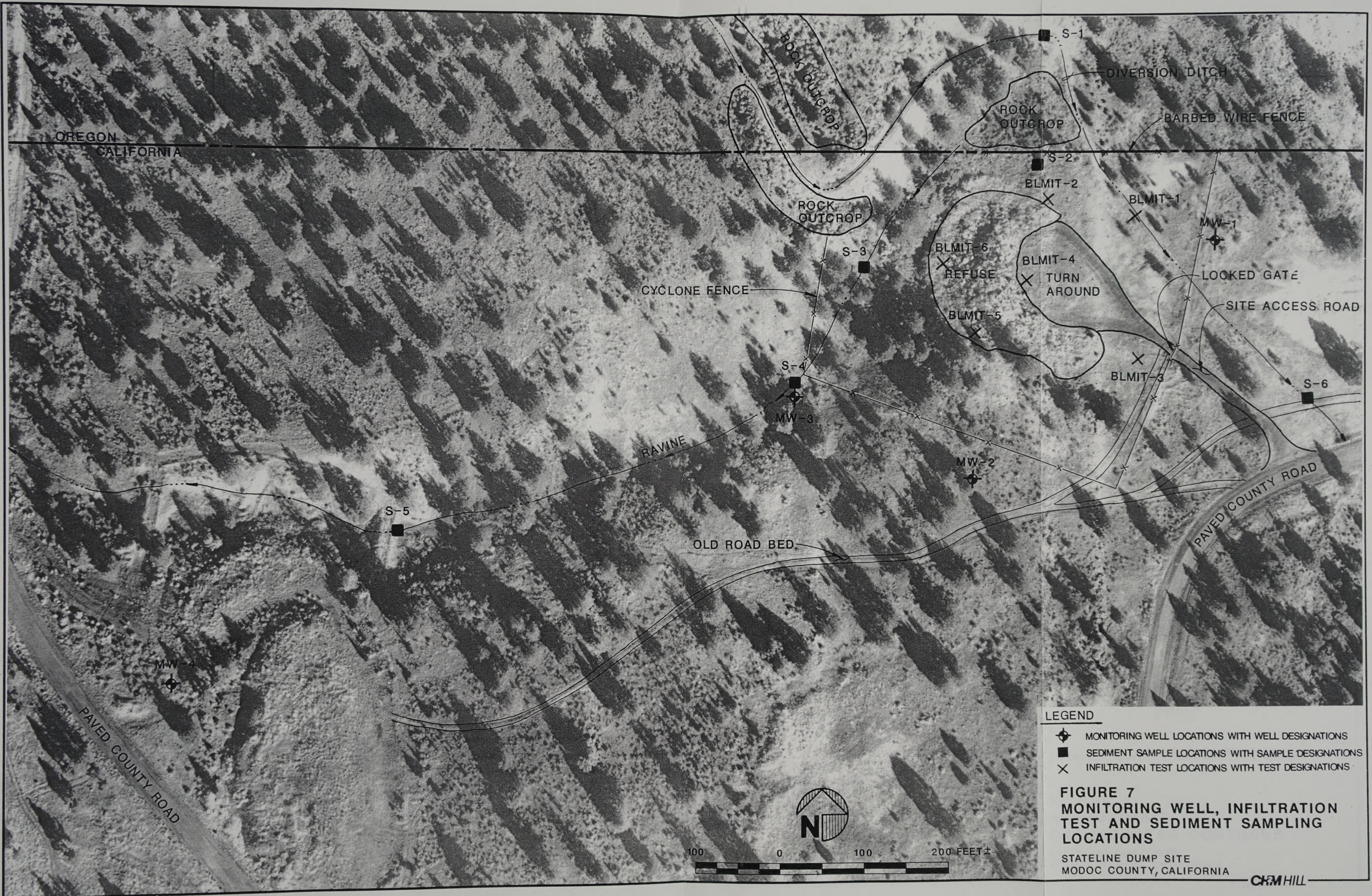

FIGURE 7
MONITORING WELL, INFILTRATION TEST AND SEDIMENT SAMPLING LOCATIONS

STATELINE DUMP SITE
MODOC COUNTY, CALIFORNIA

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During the test, 55-gallon drums were used to supply water to the infiltrometers and a float valve maintained a constant head in the center ring (Figure 8). The water level in the outer ring was maintained manually. Water level measurements were taken by using a tape measure or plastic ruler.

The infiltration rate was calculated from the field data by first converting the change in water level observed in the barrel to an equivalent change in water level in the inside ring. This was done for each measurement according to the following equation:

$$\Delta h_R = \frac{\Delta h_B \, r_B 2}{r_R 2}$$

Where Δh_B is the change in water level in the barrel, r_B is the radius of the barrel, r_R is the radius of the inside ring, and Δh_R is the equivalent change in water level in the inside ring. Once a relationship between the change in water level in the barrel and the change in water level in the inside ring has been established, the total drop in water level in the inside ring over the course of the test is divided by the length of the test to obtain an average infiltration rate, I. All field data and calculations are included in Appendix A.

Results

The results of the infiltration tests suggest that the infiltration rate of the onsite soils are between 0.2 and 5.3 in/hr. The waste materials have a higher infiltration rate of 15 to 57 in/hr (Table 4-1). The tests conducted in the waste materials were not truly constant head because the float valve assembly attached to the inner ring (Figure 8) could not keep up with the rapid decline in water level. The result was a slow decline in water level in the inside ring over the course of the test. These tests were terminated when the water supply drum went dry. As a result, these tests may have underestimated the infiltration rate of the waste material. The field data used to calculate these test results are presented in Appendix A.

HYDROGEOLOGIC FACTORS

WATER-BEARING FORMATIONS

Two shallow water-bearing units have been identified near the Stateline Dump Site. These are the fractured volcanic rocks that directly underlie the site and the valley fill lake sediments located directly downgradient of the site. Infiltration of surface water applied as irrigation and underflow from adjacent volcanic rocks probably are the principal sources of recharge to groundwater in the valley fill area. Precipitation and

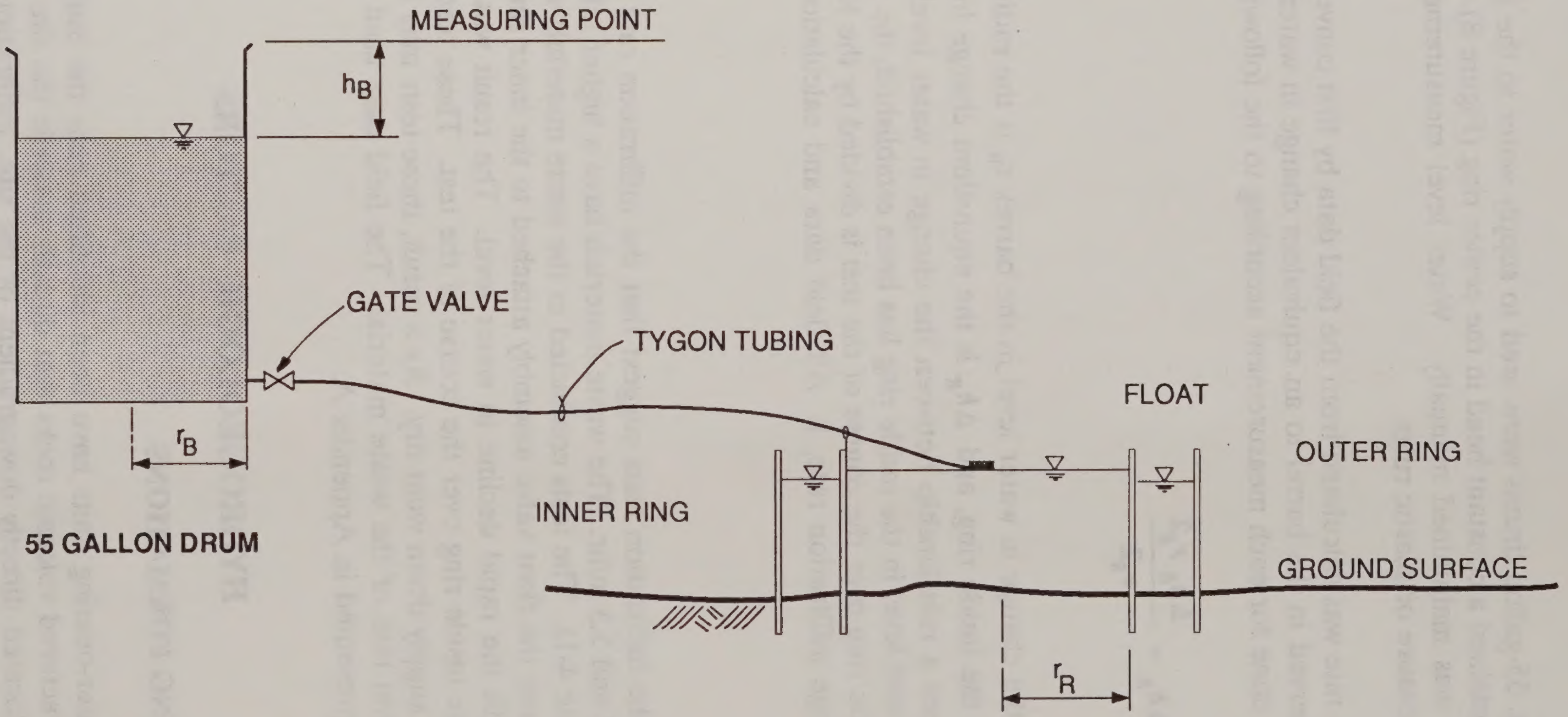


FIGURE 8
INFILTRATION TEST APPARATUS
STATELINE DUMP SITE
MODOC COUNTY, CALIFORNIA

intermittent streamflow infiltrate into the fractured volcanic rocks and are a component of groundwater recharge.

Table 4-1
Infiltration Test Results
BLM Stateline Dump

Test Location	Infiltration Rate	Material Tested
BLMIT-1	2.0 in/hr	Soil
BLMIT-2	5.3 in/hr	Soil
BLMIT-3	0.2 in/hr	Soil
BLMIT-4	0.2 in/hr	Soil
BLMIT-5	57.3 in/hr	Waste
BLMIT-6	15.2 in/hr	Waste

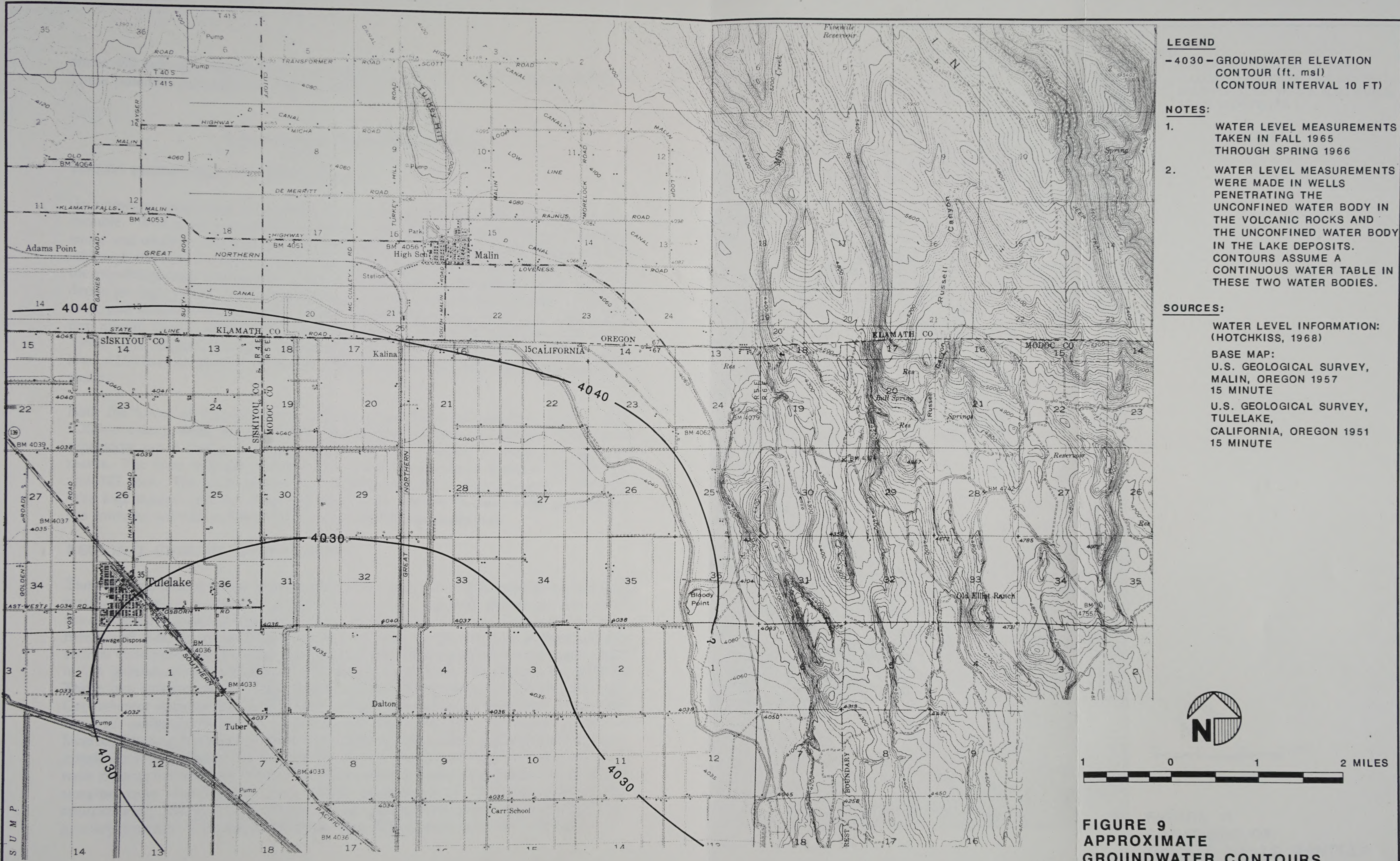
The regional groundwater beneath the Tulelake Valley generally flows north to south (Hotchkiss, 1968). The groundwater flow direction beneath the site area is unknown. Groundwater appears to flow through discrete fracture systems, with differing head conditions reflecting their point of recharge and other geologic factors. However, based on the regional groundwater flow patterns, it appears to flow to the southwest in the volcanic formations until entering the valley fill sediments. Once in the valley sediments, the groundwater flows generally south. Approximate groundwater contours taken from the literature (cited reference) are shown on Figure 9.

CONTAMINANT TRANSPORT PATHWAYS

Two possible pathways have been identified for potential contamination originating at the Stateline Dump Site to reach nearby surface water and groundwater.

Precipitation falling on the dumpsite will interact with the waste materials and may mobilize contaminants which could then enter nearby surface-water drainages. The natural organic matter contained in the silty clay soils observed in the drainages at the site may act to retard the movement of DDT and other hydrophobic contaminants off-site.

The other pathway of concern is a possible high-permeability fracture system located in the volcanic rocks which underlie the site. As stated in the Geology section, normal faulting had been mapped near the site (Hotchkiss, 1968), and the volcanic rocks observed during the site visit appeared highly fractured. It is likely that the contact water generated when precipitation falls on the bare waste pile infiltrates rapidly to the local groundwater. Groundwater samples collected from the monitoring wells drilled



LEGEND

- 4030 - GROUNDWATER ELEVATION CONTOUR (ft. msl)
(CONTOUR INTERVAL 10 FT)

NOTES:

1. WATER LEVEL MEASUREMENTS TAKEN IN FALL 1965 THROUGH SPRING 1966
2. WATER LEVEL MEASUREMENTS WERE MADE IN WELLS PENETRATING THE UNCONFINED WATER BODY IN THE VOLCANIC ROCKS AND THE UNCONFINED WATER BODY IN THE LAKE DEPOSITS. CONTOURS ASSUME A CONTINUOUS WATER TABLE IN THESE TWO WATER BODIES.

SOURCES:

WATER LEVEL INFORMATION:
(HOTCHKISS, 1968)

BASE MAP:
U.S. GEOLOGICAL SURVEY,
MALIN, OREGON 1957
15 MINUTE

U.S. GEOLOGICAL SURVEY,
TULELAKE,
CALIFORNIA, OREGON 1951
15 MINUTE

FIGURE 9
APPROXIMATE
GROUNDWATER CONTOURS

STATELINE DUMP SITE
MODOC COUNTY, CALIFORNIA

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onsite will help determine whether any contamination has moved to the groundwater. These potential pathways are shown on Figure 10.

GROUNDWATER CONDITIONS

YIELDS FROM WELLS IN THE VICINITY

Groundwater yields from wells drilled into the volcanic rocks in the area are extremely variable. Well yields are entirely dependent on whether the wells intercept fractured zones and whether the interconnected fractures contain enough water to supply a well. Although the site is situated near a fault zone, where extensive fracturing is expected, the possibility exists that a given well will not encounter a sufficient fracture system at depth for high yields. Wells drilled into the eastern transition zone south of the site area, and screened in apparently similar volcanic formations, yield up to 4,000 gallons per minute (gpm) with specific capacities of 250 gpm/ft of drawdown (Hotchkiss, 1968). This suggests that wells drilled at the site may have relatively high yields. Shallow (<150 feet deep) wells drilled into the nearby lake sediments generally have lower yields.

Both the towns of Tulelake and Malin use groundwater for municipal supply. Two 1,200-foot-deep wells, yielding 2,600 gpm, service the town of Tulelake. These wells reportedly tap a confined volcanic aquifer that lies beneath or within the lake sediments. The town of Malin is served by four municipal wells at depths of 370, 324, 380 and 327 feet. The wells provide a combined capacity of approximately 2,100 gpm. Well logs indicate that the Malin municipal wells, like the Tulelake wells, probably tap the confined volcanic aquifer that lies between the lake sediments.

REGIONAL GROUNDWATER QUALITY

The chemical quality of the groundwater in the area varies with location and geologic setting. Chemical analyses of groundwater samples from wells drilled into the unconfined volcanic aquifer several miles south of the southern contact between lake sediments and volcanic rocks (Figure 6), indicate that the groundwater is predominately sodium bicarbonate in character (Hotchkiss, 1968). This indicates that the major cation in the groundwater is sodium, and the major anion is the bicarbonate ion (HCO_3). These two samples yielded total dissolved solids (TDS) values of 150 and 266 mg/l. Groundwater samples from wells drilled in the same aquifer but nearer the contact with the lake sediments had TDS values greater than 600 mg/l. The major anion was bicarbonate, and the major cations were calcium, magnesium, and sodium in approximately equal quantities. The best quality water available in the region is obtained from wells tapping the confined volcanic aquifer beneath the lakebed deposits. Groundwater samples from this aquifer are sodium bicarbonate in character and contain approximately 200 mg/l TDS. Poorer quality groundwater occurs in the shallow sedimentary deposits. Samples of this water have TDS values as high as 1,300 mg/l.

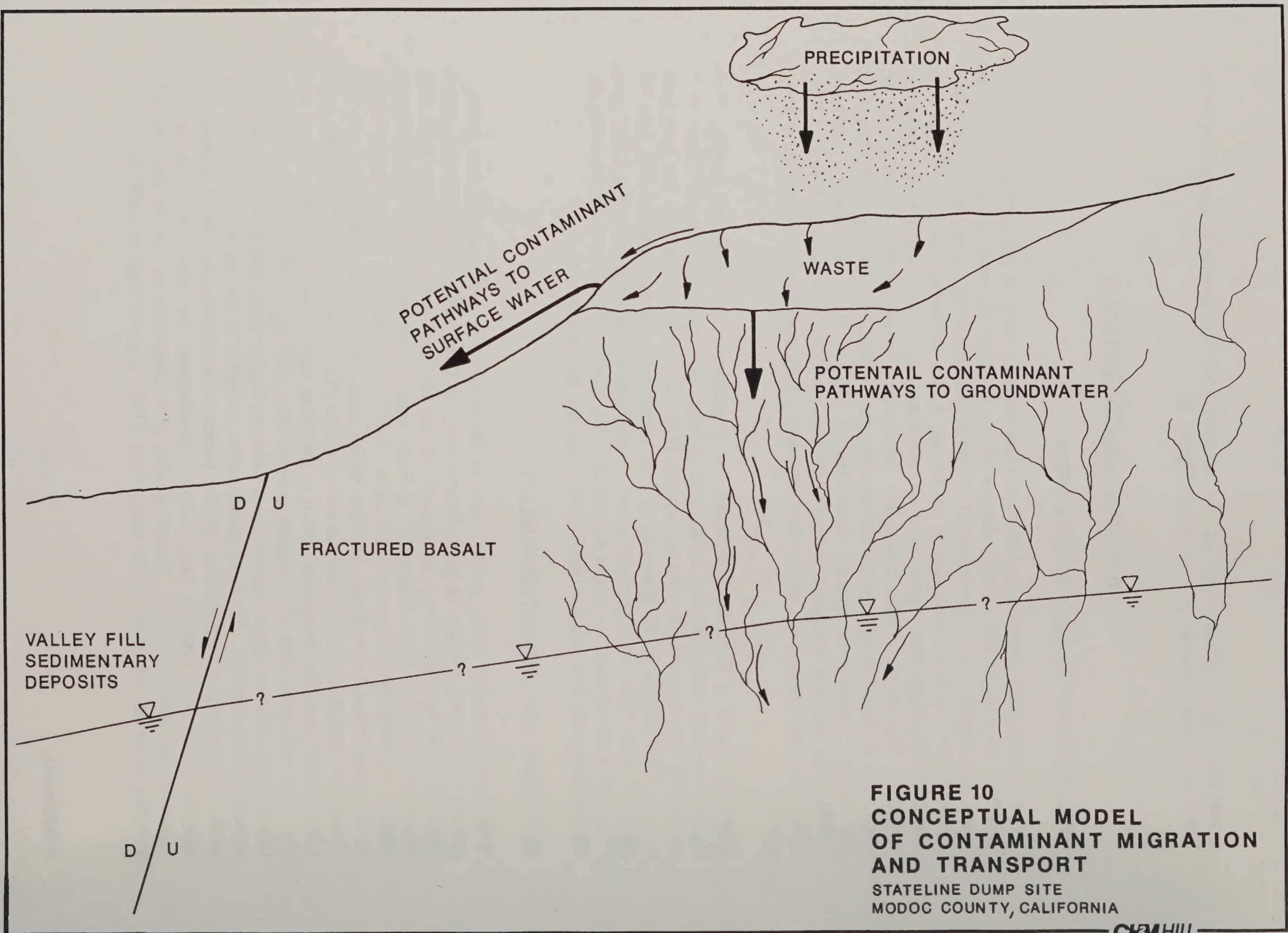
PRECIPITATION
POTENTIAL CONTAMINANT PATHWAYS TO SURFACE WATER
WASTE
POTENTAIL CONTAMINANT PATHWAYS TO GROUNDWATER
D
U
FRACTURED BASALT
VALLEY FILL SEDIMENTARY DEPOSITS
?
?
?
?
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FIGURE 10
CONCEPTUAL MODEL OF CONTAMINANT MIGRATION AND TRANSPORT
STATELINE DUMP SITE
MODOC COUNTY, CALIFORNIA

CH2M HILL

RDD28361.AO MARCH 1991

For comparison, surface-water inflows to the Tulelake sump show TDS concentrations of about 600 mg/l, while the sump water itself averages about 700 mg/l TDS.

OFFSITE WELL SAMPLING RESULTS

Five offsite wells, roughly downgradient of the landfill, were sampled to determine whether the waste materials onsite have adversely affected the groundwater quality downgradient of the site.

The locations of the sampled wells are shown in Figure 11. Analytical results indicate that none of the analytes tested for are presently above the maximum contaminant levels (MCLs) set by EPA in any of the sampled wells (Table 4-2). Analytical data sheets are included as Appendix B.

We initially intended to collect water level information from the offsite wells to augment the definition of the water table near the site. Further inspection of the sampled wells indicated that access was not available for water level measuring equipment. The impact of this was minimal since water levels measured in wells onsite indicate that no single water table exists at the site. Groundwater appears to flow through discrete fracture systems, with differing head conditions reflecting their point of recharge and other geologic factors.

MONITORING WELL INSTALLATION

Stratigraphy

The volcanic and sedimentary rock units encountered during drilling are described below.

Basalt. Two types of basalt were encountered during drilling at the site. Most of the basalt samples were black when wet to gray when dry. Occasional thicknesses of red to red-brown basalt were also encountered.

Most of the black basalt had an aphanitic texture, and therefore, visual mineral identification was not possible. The identifiable mineralogy suggests that the black basalt is dominated by mafic minerals such as augite and hornblende. Plagioclase phenocrysts were also observed.

All of the red basalt samples had an aphanitic texture. Therefore, mineral identification was not possible. The red color is due to a higher oxidation state of the iron contained in this type of basalt, and these units may represent flow tops.

NOTE

THE FIFTH OFFSITE WELL SAMPLED IS LOCATED APPROXIMATELY 1000 FEET SOUTH OF Ⓐ. THE WELL IS ALSO SHOWN AS NO. 12 ON FIGURE 1.

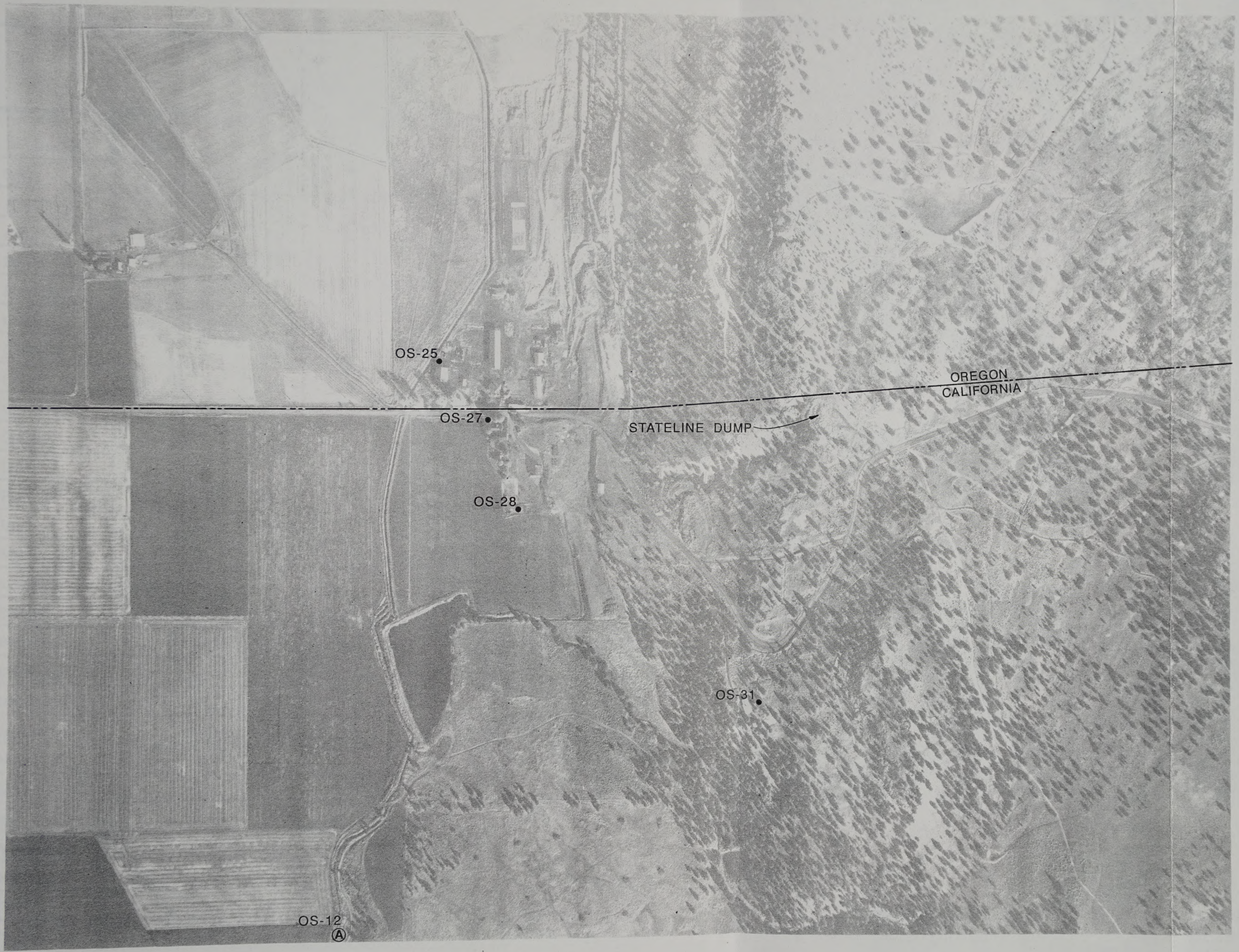

FIGURE 11
LOCATIONS OF OFFSITE WELLS SAMPLED
STATELINE DUMP SITE
MODOC COUNTY, CALIFORNIA

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Table 4-2
Offsite Groundwater Quality
June 1990 Sampling
(All Units µg/l Unless Otherwise Noted)

Analyte	Det Limit	OS-12	OS-25	OS-25 (Dup)	OS-27	OS-28	OS-31	Field Blank
Silver	3	<3	<3	<3	<3	<3	<3	<3
Aluminum	8	9	9	12	10	<8	<8	9
Arsenic	0.5	2.5	2.3	2.3	1.5	0.9	0.5	<0.5
Boron	1	5	8	7	8	5	5	<1
Beryllium	1	<1	<1	<1	<1	<1	<1	<1
Calcium	50	35,400	20,000	20,400	39,700	32,800	16,900	114
Cadmium	1	<1	<1	<1	<1	<1	<1	<1
Cobalt	4	<4	<4	<4	<4	<4	<4	<4
Chromium	3	<3	<3	<3	<3	<3	<3	<3
Copper	3	3	<3	<3	<3	<3	<3	3
DOC[a]	1.0	1.4	3.2	3.2	3.0	1.7	1.6	<1.0
Fluoride[a]	0.05	0.13	0.17	0.16	0.12	0.10	0.11	<0.05
Iron	20	<20	30	24	31	<20	<20	27
Mercury	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chloride[a]	1.0	3.5	3.0	2.9	9.1	4.5	1.7	<1.0
Sulfate[a]	1.0	20.7	8.5	8.3	21.1	9.7	2.5	<1.0
Potassium	350	4,820	3,000	3,100	4,210	2,500	1,600	<350
Magnesium	24	19,700	11,000	11,200	19,800	18,500	83,200	<24
Manganese	1	<1	14	14	<1	<1	<1	1
Sodium	50	14,400	11,400	11,700	19,000	12,500	7,090	<50
Nickel	6	<6	<6	<6	<6	<6	<6	<6
Lead	0.8	0.9	<0.8	<0.8	1.1	<0.8	1.4	<0.8
pH[b]	---	8.03	6.88	6.92	7.46	7.71	7.38	5.70
Antimony	10	<10	<10	<10	<10	<10	13	<10
Selenium	0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
TDS[a]	3	238	122	171	231	208	118	3
Thallium	0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6

Table 4-2
Offsite Groundwater Quality
June 1990 Sampling
(All Units µg/l Unless Otherwise Noted)

Analyte	Det Limit	OS-12	OS-25	OS-25 (Dup)	OS-27	OS-28	OS-31	Field Blank
TOC[a]	1.0	1.0	2.8	3.2	2.4	1.2	1.0	<1.0
Vanadium	3	20	30	30	25	13	11	<3
Zinc	3	84	350	380	9	<3	52	4
EPA 8010	var	ND	ND	ND	ND	ND	ND	ND
EPA 8020	var	ND	ND	ND	ND	ND	ND	ND
EPA 8040	var	ND	ND	ND	ND	ND	ND	ND
EPA 8080	var	ND	ND	ND	ND	ND	ND	ND
EPA 8140	var	ND	ND	ND	ND	ND	ND	ND

[a] Units are mg/l.
[b] pH measured in pH units.

ND: No compounds in this analyte suite detected.

The degree of vesicularity in the basalt units varied greatly. The samples with a more pronounced vesicular texture often also contained red-brown voids where less stable minerals have weathered out. These zones are likely the top portions of lava flows that underwent extensive degassing and were exposed to surface weathering processes. Drill cuttings from several reddish-brown basalt layers were completely pulverized with very few rock fragments returning in the drill cuttings. It is likely that these zones consist of cinder basalt or other low-strength material that is highly vesicular in texture.

Other samples contained basalt that had little or no vesicular texture and no evidence of weathering. These samples likely represent portions of the lava flow which were isolated from surface conditions. Higher pressure conditions prevented extensive degassing of the lava and prevented the formation of a vesicular texture.

Sandstone. The sandstone encountered at the site is brown to light brown in color and consists of volcanic mineral grains and rock fragments. Grains of augite, hornblende, plagioclase, and black and red basalt fragments were identified. The grain size of the sand grains varied from fine to medium. The sandstone samples varied from slightly to moderately well indurated.

This unit was likely deposited in a shoreline environment of ancient Tule Lake.

Claystone. Most of the claystone earth encountered at the site appeared to exist in thin layers between lava flow units. Claystone samples varied from brown to buff color to white. Some of the vesicular basalt samples had claystone infilling of the vugs. This suggests that the lava was beneath the lake surface at times and received deposition of sediment from the overlying water column.

Claystone is deposited in low-energy environments such as deep water shelves or tidal mud flat environments.

Monitoring Well Construction

The stratigraphy encountered during drilling of the monitoring wells is consistent with the geologic setting described above. The wells are numbered MW-1 through MW-4 with MW-1 farthest to the east and MW-4 farthest to the west (Figure 7). Wells MW-1 and MW-2 were drilled entirely through basalt rocks, while Wells MW-3 and MW-4 encountered significant thicknesses of lake deposits (sandstone and claystone). Boring logs are included as Appendix C.

Table 4-3 presents the construction data for the newly installed monitoring wells. Well construction diagrams are included as Appendix D. All wells were drilled with an 8-1/2-inch conducter casing to a depth of 20 feet, except for Well MW-4 where 40 feet of conductor casing was installed. The filter pack installed was No. 3 Lonestar Monterey sand, the bentonite seal was bentonite pellets, and the grout seal was portland cement mixed with approximately 5 percent powdered bentonite.

All well screen used was 4-inch-diameter, stainless steel continuous wire-wrap screen with a slot size of 0.020 inch. All blank casing was 4-inch-diameter Schedule 40 PVC casing. The sumps used in these wells were 2 feet in length, 4 inches in diameter, and made of stainless steel. Locking 8-1/2-inch-diameter steel monuments were emplaced and grouted at each wellhead. Padlocks were installed at each wellhead.

Groundwater Elevation and Flow Direction

Figure 12 presents the groundwater elevations measured in the monitoring wells during three site visits in 1990. A general trend suggests that groundwater may move to the southwest beneath the site. The extreme differences in water levels between wells--80 feet between MW-2 and MW-3 and 140 feet between MW-3 and MW-4--suggest that a strong downward vertical hydraulic gradient exists in the fractured basalt flow system beneath the landfill.

The groundwater levels presented here suggest that the monitoring wells may intercept discrete fracture systems with little or no hydraulic connection between them. This type of flow system is typical of water movement through fractured rock. This fact along with the presence of a strong vertical gradient at the site precludes determination of groundwater flow directions using a groundwater elevation contour map.

Table 4-3
Monitoring Well Construction Information

	MW-1	MW-2	MW-3	MW-4
Sump	219.5-217.5	120-118	158-156	200-198
Screen	217.5-167.5	118-68	156-106	198-148
PVC Blank	167.5-0	68-0	106-0	148-0
Sand Pack	219.5-163	121-63	160-96	200-142
Bentonite Seal	163-157	63-57	96-88	142-137
Grout Seal	157-0	57-0	88-0	137-0
Ground Elevation (feet msl)	4378.3	4324.9	4284.8	4182.5

Note: All values cited above are feet below ground surface unless otherwise specified.

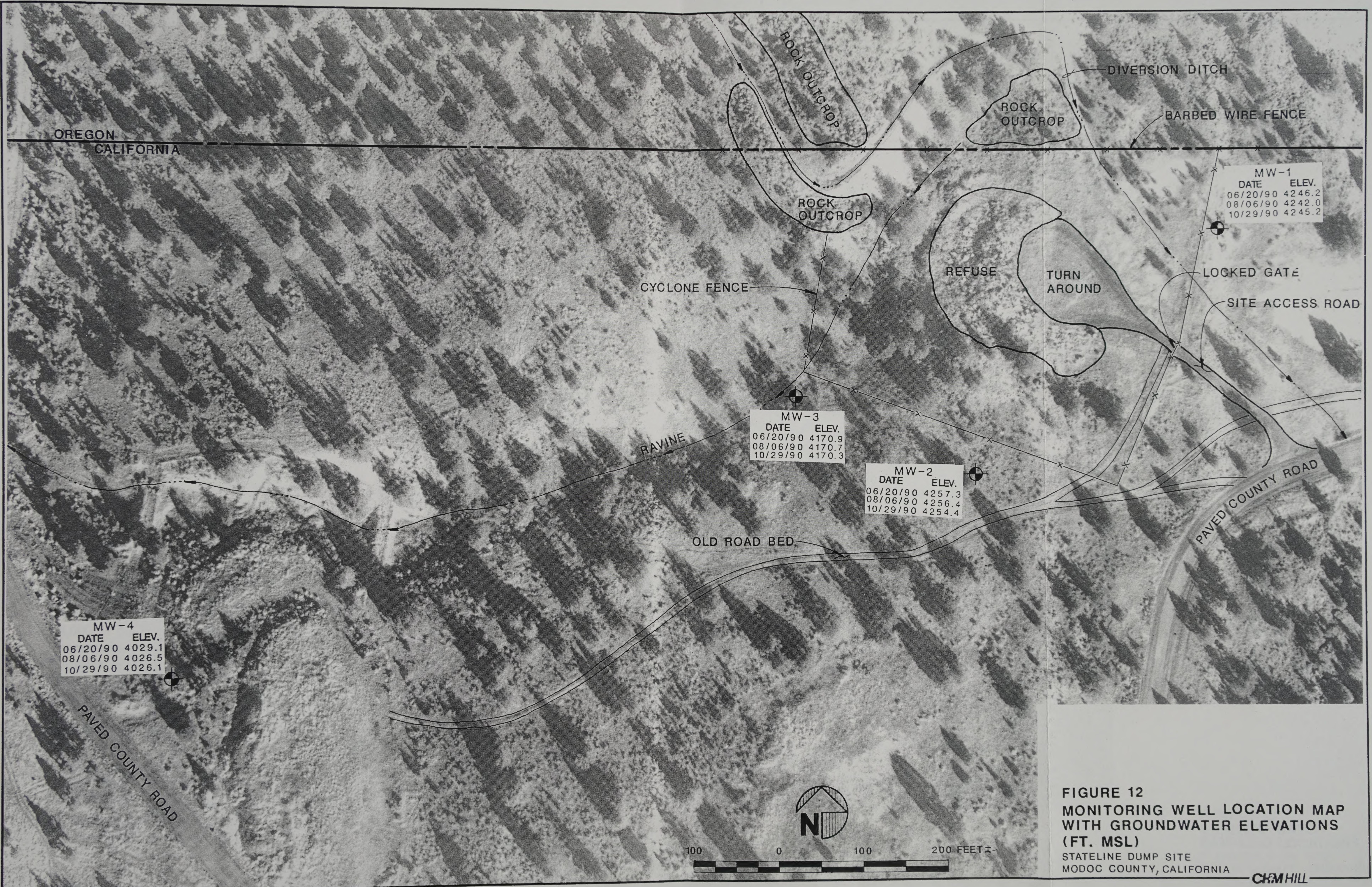
Aquifer Test Results

Constant discharge aquifer tests were conducted in the monitoring wells. The pumping phase of the tests was approximately 2 hours. The only exception was the test performed in Well MW-2. The pumps available on the site had a maximum capacity of 25 gpm, and at this pumping rate, drawdown had stabilized at about 1.5 feet. After about 30 minutes, the test was terminated. The recovery portion of the tests averaged approximately 90 minutes.

Table 4-4 presents the results of the aquifer tests. Well MW-1 has a transmissivity of about 10,000 gpd/ft, while Wells MW-3 and MW-4 have transmissivities of about 3,000 gpd/ft. As described above, the test performed on Well MW-2 was of limited duration due to the high yield of the well and the limited pumping capacity of the available pumps onsite. The recovery portion of this test suggests that the transmissivity of this well is greater than 100,000 gpd/ft. The differences in transmissivity estimates between wells are due to the geology at the site. Wells that intercept significant fracture zones have much higher transmissivities than those that do not.

Table 4-4
Transmissivity Results
from Aquifer Tests
(gpd/ft)

Test	MW-1	MW-2	MW-3	MW-4
Pumping	7,700	N/A	2,270	1,800
Recovery	11,150	>100,000	3,600	2,600



MW-1

DATE	ELEV.
06/20/90	4246.2
08/06/90	4242.0
10/29/90	4245.2

MW-2

DATE	ELEV.
06/20/90	4257.3
08/06/90	4256.4
10/29/90	4254.4

MW-3

DATE	ELEV.
06/20/90	4170.9
08/06/90	4170.7
10/29/90	4170.3

MW-4

DATE	ELEV.
06/20/90	4029.1
08/06/90	4026.5
10/29/90	4026.1

FIGURE 12
MONITORING WELL LOCATION MAP
WITH GROUNDWATER ELEVATIONS
(FT. MSL)
STATELINE DUMP SITE
MODOC COUNTY, CALIFORNIA

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GROUNDWATER VELOCITY

The velocity of groundwater movement in an aquifer can be determined from the following equation:

$$v = K\,I/\Theta$$

where:

K is the hydraulic conductivity of the aquifer (ft/day)
I is the hydraulic gradient measured along the flowpath (ft/ft)
Θ is the porosity of the aquifer materials (unitless)
v is the average groundwater velocity (ft/day)

For the Stateline Dump Site, the aquifer tests conducted in the four monitoring wells constructed onsite were used to estimate the average hydraulic conductivity of the fractured bedrock. Test results indicate that the average hydraulic conductivity of the bedrock is about 23 ft/day.

Groundwater contour maps developed by Hotchkiss, 1968, suggest that the regional hydraulic gradient near the site is about 9×10^{-4} ft/ft.

Typical porosities have been measured for basalt bedrock, and the average value is about 10 percent (USGS, 1982).

Using these estimates and the equation presented above, the average groundwater velocity beneath the site is about 80 ft/yr.

RATE OF CONTAMINANT MOVEMENT

Any contaminants that leach from the wastes onsite and mix with the underlying groundwater will be carried downgradient at an average rate of about 80 ft/yr. This implies that contamination originating at the site will travel 800 feet, 2,000 feet, and 4,000 ft in 10, 25, and 50 years, respectively. These estimates assume that the contaminant of interest is completely conservative, i.e., does not interact with the aquifer materials in any way. If contaminants are sorbed to the aquifer materials, or diffuse into less accessible pores, their rate of movement would be significantly slower than that estimated here.

ONSITE GROUNDWATER QUALITY

Three rounds of groundwater samples were collected from the four monitoring wells onsite in June, August, and October of 1990. The analytical results from June, August, and October sampling rounds are presented in Tables 4-5, 4-6, and 4-7, respectively. Results indicate that none of the analytes tested for are present above the MCLs set by EPA in any of the sampled wells. Analytical data sheets are included as Appendix E.

Table 4-5
Onsite Groundwater Quality
June 1990 Sampling
(All Units µg/l Unless Otherwise Noted)

Analyte	Detection Limit	MW-1	MW-2	MW-3	MW-3 (Dup)	MW-4	Field Blank
Silver	3	<3	<3	<3	<3	<3	3
Aluminum	8	9	165	20	20	<8	15
Arsenic	0.5	1.1	0.7	1.0	1.0	0.8	<0.5
Boron	1	3	6	13	13	3	<1
Beryllium	1	<1	<1	<1	<1	<1	<1
Calcium	50	15,800	18,600	18,300	18,200	20,700	129
Cadmium	1	<1	<1	<1	<1	<1	<1
Cobalt	4	<4	<4	<4	<4	<4	<4
Chromium	3	<3	<3	<3	<3	<3	<3
Copper	3	4	<3	<3	<3	5	3
DOC[a]	1.0	1.2	1.0	1.5	1.1	1.4	<1.0
Fluoride[a]	0.05	0.08	0.07	0.09	0.10	0.08	<0.05
Iron	20	26	146	23	22	27	26
Mercury	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chloride[a]	1.0	2.5	3.1	14.7	14.6	4.2	<1.0
Sulfate[a]	1.0	3.0	3.6	5.6	5.5	4.4	<1.0
Potassium	350	1,600	1,600	2,200	1,900	2,100	<350
Magnesium	24	8,310	9,480	9,790	9,750	11,000	<24
Manganese	1	1	6	4	4	10	1
Sodium	50	7,560	8,560	16,500	16,400	8,770	141
Nickel	6	<6	<6	<6	<6	<6	<6
Lead	0.8	1.9	1.0	2.9	1.2	4.1	<0.8
pH[b]	---	8.11	7.95	8.04	8.04	7.96	6.00
Antimony	10	<10	<10	<10	<10	<10	<10
Selenium	0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
TDS[a]	3	147	138	156	160	167	<3
Thallium	0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6

Table 4-5
Onsite Groundwater Quality
June 1990 Sampling
(All Units µg/l Unless Otherwise Noted)

Analyte	Detection Limit	MW-1	MW-2	MW-3	MW-3 (Dup)	MW-4	Field Blank
TOC[a]	1.0	<1.0	1.1	1.1	1.2	1.1	<1.0
Vanadium	3	11	11	11	10	11	<3
Zinc	3	162	157	391	389	472	<3
EPA 8010	var	ND	ND	ND	ND	ND	ND
EPA 8020	var	ND	ND	ND	ND	ND	ND
EPA 8040	var	ND	ND	ND	ND	ND	ND
EPA 8080	var	ND	ND	ND	ND	ND	ND
EPA 8140	var	ND	ND	ND	ND	ND	ND

[a] Units are mg/l.
[b] pH measured in pH units.

ND: No compounds in this analyte suite detected.

Table 4-6
Onsite Groundwater Quality
August 1990 Sampling
(All Units µg/l Unless Otherwise Noted)

Analyte	Detection Limit	MW-1	MW-2	MW-3	MW-4
Silver	3	<3	<3	<3	<3
Aluminum	8	12	21	23	23
Arsenic	0.5	0.6	0.6	1.0	0.7
Boron	1	2	5	8	4
Beryllium	1	<1	<1	<1	<1
Calcium	50	16,400	17,800	17,900	20,600
Cadmium	1	<1	<1	<1	<1
Cobalt	4	<4	<4	<4	<4
Chromium	3	<3	<3	3	<3
Copper	3	<3	<3	<3	16
DOC[a]	1.0	1.1	1.2	1.2	1.2
Fluoride[a]	0.05	0.18	0.15	0.17	0.15
Iron	20	<20	<20	<20	<20
Mercury	0.2	<0.2	<0.2	<0.2	<0.2
Chloride[a]	0.017	2.0	2.2	2.5	2.9
Sulfate[a]	0.010	2.8	3.2	3.8	4.3
Potassium	350	1,500	1,700	1,900	1,900
Magnesium	24	8,680	8,970	9,240	10,800
Manganese	1	1	<1	2	6
Sodium	50	7,370	7,150	7,610	7,410
Nickel	6	<6	<6	<6	<6
Lead	0.8	4.3	1.6	5.6	6.3
pH[b]	---	7.88	7.75	7.95	7.88
Antimony	10	<10	<10	<10	<10
Selenium	0.8	<0.8	<0.8	<0.8	<0.8
TDS[a]	3	119	137	149	143
Thallium	0.6	<0.6	<0.6	<0.6	<0.6

Table 4-6
Onsite Groundwater Quality
August 1990 Sampling
(All Units µg/l Unless Otherwise Noted)

Analyte	Detection Limit	MW-1	MW-2	MW-3	MW-4
TOC[a]	1.0	<1.0	1.0	1.3	1.0
Vanadium	3	11	9	11	10
Zinc	3	98	59	89	168
EPA 8010	var	ND	ND	ND	ND
EPA 8020	var	ND	ND	ND	ND
EPA 8040	var	ND	ND	ND	ND
EPA 8080	var	ND	ND	ND	ND
EPA 8140	var	ND	ND	ND	ND

[a] Units are mg/l.
[b] pH measured in pH units.

ND: No compounds in this analyte suite detected

Table 4-7
Onsite Groundwater Quality
October 1990 Sampling
(All Units µg/l Unless Otherwise Noted)

Analyte	Detection Limit	MW-1	MW-2	MW-3	MW-3 (Dup)	MW-4	Field Blank
Silver	3	<3	<3	<3	<3	<3	<3
Aluminum	8	146	20	31	25	25	11
Arsenic	0.5	<0.5	<0.5	0.7	0.5	<0.5	<0.5
Boron	1	3	5	8	7	3	<1
Beryllium	1	<1	<1	<1	<1	<1	<1
Calcium	50	16,800	18,200	18,400	18,400	21,100	1,940
Cadmium	1	<1	<1	<1	<1	<1	<1
Cobalt	4	<4	<4	<4	<4	<4	<4
Chromium	3	4	<3	<3	<3	<3	<3
Copper	3	<3	<3	<3	<3	<3	<3
DOC[a]	1.0	<1.0	<1.0	<1.0	1.1	1.4	<1.0
Fluoride[a]	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Iron	20	238	<20	31	32	<20	71
Mercury	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chloride[a]	0.085	1.74	1.96	2.10	2.24	2.58	1.43
Sulfate[a]	0.050	2.76	3.01	3.61	3.64	4.03	0.375
Potassium	350	1,600	1,600	1,900	1,800	2,100	<350
Magnesium	24	9,020	9,500	9,840	9,870	11,400	594
Manganese	1	5	<1	1	2	4	1
Sodium	50	7,060	7,360	7,850	7,880	7,680	1,080
Nickel	6	<6	<6	<6	<6	<6	<6
Lead	0.8	1.7	<0.8	1.0	<0.8	0.8	<0.8
pH[b]	---	8.12	7.88	8.11	8.13	8.05	7.61
Antimony	10	<10	<10	<10	<10	<10	<10
Selenium	0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
TDS[a]	3	122	121	130	120	152	7

Table 4-7
Onsite Groundwater Quality
October 1990 Sampling
(All Units μg/l Unless Otherwise Noted)

Analyte	Detection Limit	MW-1	MW-2	MW-3	MW-3 (Dup)	MW-4	Field Blank
Thallium	0.6	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
TOC[a]	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Vanadium	3	10	10	11	11	10	<3
Zinc	3	90	284	66	68	113	8
EPA 8010	var	ND	ND	ND	ND	ND	ND
EPA 8020	var	ND	ND	ND	ND	ND	ND
EPA 8040	var	ND	ND	ND	ND	ND	ND
EPA 8080	var	ND	ND	ND	ND	ND	ND
EPA 8140	var	ND	ND	ND	ND	ND	ND

[a] Units are mg/l.
[b] pH measured in pH units.

ND: No compounds in this analyte suite detected.

Chapter 5
SURFACE WATER

SEDIMENT SAMPLING RESULTS

Previous sampling of shallow soils at the Stateline Dump Site detected low concentrations of volatile organics (benzene [9 ppb], toluene [58 ppb]), organochlorine pesticides (4,4-DDE [157 ppb], 4,4'-DDT [0.1 ppb]), and phthalates. Elevated levels of heavy metals were also present. These compounds were detected in soil samples collected from cover material present in the waste pile. This sampling effort focused on the sediments surrounding the landfill to determine if contact water runoff or any other mechanism may be transporting contamination from the waste material into sediments surrounding the site.

The sediment sampling locations used in this investigation are shown in Figure 7. These locations were chosen to provide analyses of a background sediment sample (S-2), three sediment samples moving progressively farther down the main drainage beneath the landfill (S-3 through S-5), and two samples from the drainage ditch located just north of the landfill (S-1 and S-6).

All sediment samples were taken using the methods outlined in the sampling plan prepared for this site.

The analytical results from the sediment sampling effort (Table 5-1) indicate that none of the analytes tested for are present in concentrations at or above the designated levels used by the California Regional Water Quality Control Board as guidelines to protect benefical uses of water. Methylene chloride was detected in all sediment samples at concentrations that range from 2.3 to 7.0 ppb. Methylene chloride was also detected at 1.0 ppb in the laboratory method blank suggesting that these results may reflect laboratory contamination. Methylene chloride is a known common laboratory contaminant.

The only heavy metals present above Total Threshold Limit Concentration levels were iron, manganese, and arsenic. The concentrations of these metals were similar in all samples including the background sample, suggesting that these values represent natural soil conditions. These metals are commonly found in soils associated with the type of volcanic rocks present at the site. Analytical data sheets are presented as Appendix F.

Table 5-1
Sediment Sampling Results
June 1990 Sampling
(All Units mg/kg Unless Otherwise Noted)

Analyte	S-1	S-2	S-3	S-4	S-5	S-6
Silver	8.2	<0.74	<0.8	<0.71	<0.85	<0.70
Aluminum	15,600	18,100	25,700	16,300	22,400	23,300
Arsenic	0.34	0.30	0.12	0.24	<0.1	<0.58
Barium	185	194	167	169	224	190
Beryllium	0.52	0.50	0.78	0.46	0.82	1.0
Calcium	6,610	6,390	7,970	8,140	10,500	19,600
Cadmium	0.55	0.53	0.57	0.54	0.74	0.49
Cobalt	16.6	19.9	15.7	19.6	17.2	15.9
Chromium	20.8	23.6	27.9	17.9	26.8	27.0
Copper	30.6	32.4	34.3	25.5	42.5	32.1
Fluoride	0.62	0.42	0.76	0.43	0.60	NR
Iron	15,400	18,300	22,600	21,800	23,400	18,600
Mercury	<0.08	0.07	0.11	<0.07	<0.08	<0.06
Potassium	1,540	1,600	2,820	1,280	3,450	3,450
Magnesium	4,220	4,430	6,890	9,590	6,390	8,910
Manganese	717	777	570	833	761	526
Sodium	550	692	656	1000	528	481
Nickel	22.7	28.0	34.0	46.7	32.5	32.2
Lead	10.6	10.8	16.5	6.8	6.0	7.8
pH[a]	6.1	6.2	6.1	5.8	6.0	NR
Antimony	<2.6	<2.5	<2.7	2.4	<2.8	<2.0
Selenium	<0.16	<0.16	<0.16	<0.16	<0.16	<0.19
Thallium	<0.12	<0.12	0.20	0.16	0.14	0.16
Vanadium	40.2	46.0	39.4	42.6	56.5	41.8
Zinc	49.0	58.3	54.6	95.6	70.8	47.6

Table 5-1
Sediment Sampling Results
June 1990 Sampling
(All Units mg/kg Unless Otherwise Noted)

Analyte	S-1	S-2	S-3	S-4	S-5	S-6
EPA 8010[b]	ND	ND	ND	ND	ND	ND
EPA 8020	ND	ND	ND	ND	ND	ND
EPA 8040	ND	ND	ND	ND	ND	ND
EPA 8080	ND	ND	ND	ND	ND	ND
EPA 8140	ND	ND	ND	ND	ND	ND

[a] pH measured in pH units.
[b] Dichloromethane was detected (2.3-7.0 ppb) in all sediment samples but was also detected in the method blank (1.0 ppb). This is assumed to be laboratory contamination.

ND: No compounds in this analyte suite detected.
NR: Analysis not run.

FLOOD POTENTIAL

The flood potential for this site is low due to several factors

- Infiltration tests in the soils nearby indicate that the ground surface has the capacity to infiltrate up to 5 in/hr, suggesting that very little runoff is produced by the storms that occur in the area.
- The Tulelake area averages only 12.6 in/yr of precipitation.
- The site area is characterized by a poorly developed drainage system that acts to limit the flow in any single drainage.
- Observations at the site suggest that there is little, if any, surface-water flow through the small drainage that crosses the site.

DRAINAGE

Available mapping indicates a perennial stream approximately one-half mile south of the site. This stream was flowing during the site visit in November, and no other natural surface-water bodies were observed in the vicinity. All existing surface-water bodies in the vicinity of the site are manmade stockwater ponds, supply reservoirs, and conveyance canals. Surface water in the vicinity of the site is shown on Figure 13.

The diversion ditch (Figure 13) drains an area of approximately 25 acres. The majority of the soils in the area are coarse textured and shallow to fractured bedrock, which results in minimal surface runoff. A 1968 USGS study, in conjunction with the National Park Service, revealed that surface runoff in the area was virtually nonexistent. Few natural drainageways exist on and in the vicinity of the site, which further suggests that surface runoff is minimal.

Surface-water sampling was performed at the five locations shown on Figure 13. The analytical results from this sampling are presented in Table 5-2. Results indicate the presence of PCB 1260 in four of the five samples collected (Locations SW-2 through SW-5 on Figure 13). Concentrations of PCB 1260 ranged from a high of 6.8 µg/l at Location SW-4 to a low of 4.3 µg/l at Location SW-3. During this investigation, PCB 1260 was not detected in any of the sediment samples collected in the drainage below the waste materials, or the groundwater samples collected from the monitoring wells. PCB 1260 was also not detected in shallow soil samples collected at the site by Ray F. Weston in 1988. Therefore, it is unlikely that the presence of PCB 1260 in the surface water is in any way connected to the waste materials onsite. Analytical data sheets for the surface-water sampling are included as Appendix G.

Table 5-2
Surface-Water Quality
February 1990 Sampling
(All Units µg/l Unless Otherwise Noted)

Analyte	Detection Limit	SW-1	SW-2	SW-3	SW-4	SW-5
4AAP Phenol[a]	0.05	<0.10	<0.05	<0.05	<0.05	<0.5
Silver	7	<7	<7	<7	<7	<7
Aluminum	28	809	749	404	3,320	88
Arsenic	2	<2	<2	3.1	4.4	<2
Barium	1	72	45	27	218	9
Beryllium	1	<1	<1	<1	<1	<1
Calcium	94	99,400	6,190	10,400	18,300	18,100
Cadmium	2	<2	<2	<2	<2	<2
Chloride[a]	1.0	10.9	2.0	4.9	6.2	2.8
Cobalt	7	<7	<7	<7	10	<7
Chromium	3	<3	<3	<3	<3	<3
Copper	4	<4	5	5	12	<4

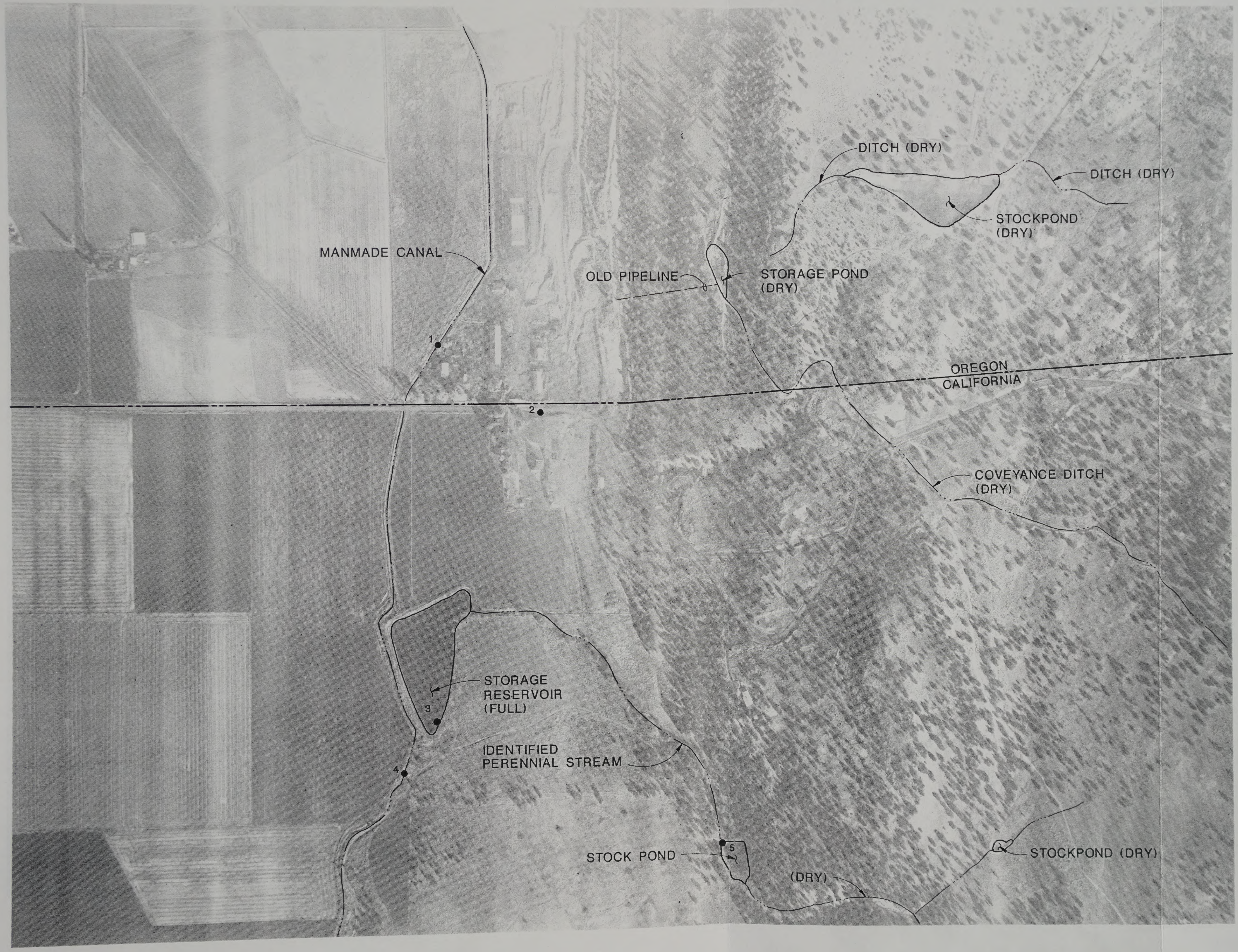

FIGURE 13
SURFACE WATER
SAMPLING LOCATIONS
STATELINE DUMP SITE
MODOC COUNTY, CALIFORNIA
CH2M HILL

Table 5-2
Surface-Water Quality
February 1990 Sampling
(All Units µg/l Unless Otherwise Noted)

Analyte	Detection Limit	SW-1	SW-2	SW-3	SW-4	SW-5
DOC[a]	1.0	37.4	12.3	15.4	17.0	2.5
Fluoride[a]	0.05	0.20	0.07	0.12	0.08	0.07
Iron	40	2,250	961	597	5,390	331
Mercury	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Potassium	1,000	6,300	2,100	2,600	8,400	1,700
Magnesium	50	89,000	2,470	4,720	7,830	9,950
Manganese	1	2,970	114	48	856	72
Sodium	200	91,000	3,490	10,900	8,550	8,210
Nickel	14	<14	<14	<14	<14	<14
Lead	2.0	<2.0	<2.0	<2.0	2.9	<2.0
pH[b]	---	6.93	6.70	9.38	6.86	8.63
Antimony	20	<20	<20	<20	<20	<20
Selenium	2	<2	<2	<2	<2	<2
Sulfate[a]	1.0	<1.0	3.4	8.8	4.8	2.6
TDS[a]	3	951	72	135	148	138
Thallium	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
TOC[a]	1.0	40.1	17.0	14.7	27.3	2.5
Vanadium	3	11	8	15	43	10
Zinc	6	8	18	6	40	<6
EPA 8010	var	ND	ND	ND	ND	ND
EPA 8020	var	ND	ND	ND	ND	ND
EPA 8040	var	ND	ND	ND	ND	ND
EPA 8080	var	ND	ND	ND	ND	ND
-PCB 1260	0.2	ND	5.3	4.3	6.8	4.4
EPA 8140	var	ND	ND	ND	ND	ND

Table 5-2
Surface-Water Quality
February 1990 Sampling
(All Units µg/l Unless Otherwise Noted)

Analyte	Detection Limit	SW-1	SW-2	SW-3	SW-4	SW-5

[a] Units are mg/l.
[b] pH measured in pH units.

ND: No compounds in this analyte suite detected.

Chapter 6
HEALTH AND ENVIRONMENTAL CONCERNS

HUMAN RECEPTORS

The primary pathways for contaminant migration at the site are through physical human contact with the refuse materials and associated contaminants and through the ingestion of contaminated groundwater or wind blown particulates. Five residences are located within 1 mile of the site, and 19 residences are located within 3 miles of the site. All residences depend on groundwater as a drinking and irrigation water source. Klamath Project water is available for irrigation and residential use in Oregon, beginning approximately 1 mile east of Malin, approximately 3 miles northwest of the site. Well logs from the area list a total of 33 wells for domestic use, 16 wells for irrigation use, and 10 wells as a source for stockwater. Some wells are listed for dual purposes.

Impacts on human receptors would be limited to the ingestion of contaminated groundwater or personal contact with the refuse. No odors or apparent gas generation were noticed at the dumpsite during the CH2M HILL site visit in November. The cyclone fence provides some control for access to the site, lessening the possibility of personal contact with the waste. Preliminary analysis of the direction of groundwater flow suggests that the groundwater moves in a south to southwest direction. Three residences were observed within 1 mile and possibly downgradient from the site. The nearest downgradient residence is approximately 1,800 feet west of the site.

OTHER RECEPTORS

Communication with the California Department of Fish and Game and the Oregon Department of Fish and Wildlife indicates no known rare and endangered plants or animal species living at the site. Bald eagles, a federal endangered species, and Swainsen hawks, a candidate threatened California species, are documented in the area and are expected to use the site area for hunting territory. A Swainsen hawk and two juvenile bald eagles were seen during the site visit in November 1989. The Swainsen hawk circled the site a number of times, and it appeared that the site was a common hunting location. The California Department of Fish and Game records indicate known Swainsen hawk nesting sites approximately 10 miles south of the site. Both the Oregon Department of Fish and Wildlife and the California Department of Fish and Game document bald eagle nesting sites within 20 miles of the site. In addition, golden eagle and prairie falcon nesting sites are documented within 10 miles of the site.

The area of the Stateline Dump Site is designated deer winter range, and numerous deer were seen in the area outside the site fence during the November site visit. Antelope winter range is mapped approximately 3 miles south of the site. Clear Lake antelope herd kidding grounds are identified within 4 miles of the site.

No map check was made for the presence of rare and endangered plant species because the California Natural Diversity Data Base computer was inoperable until December 1, 1989. The heavy pressure from cattle and deer grazing is likely to have eliminated any sensitive plants in unfenced areas. No forb or new grass growth was evident at the site. Possible site identification of endangered plant species must be undertaken in the spring.

Existing site vegetation is dominated by the northern juniper woodland (Holland, 1986). This is an open woodland dominated by Juniperus occidentalis with an understory of sagebrush scrub and annual grasses.

Impacts on other receptors will vary with the species and feeding and lifestyle patterns. The major impacts on mammal populations such as deer and antelope would be hazards from direct contact, contact with surface runoff, or ingestion of contaminated groundwater or particulates. No surface-water runoff has generated from the site. The existing fence should limit potential impacts from physical contact with the waste.

Chapter 7

QUALITY ASSURANCE/ QUALITY CONTROL

FIELD RESULTS

Field quality control procedures involved documenting the sampling and sample handling procedures specified in the Sampling Plan (CH2M HILL, 1990) and the Quality Assurance/Quality Control Plan (CH2M HILL, 1990). Three duplicate samples were collected: one during the offsite well sampling and one each during the first and third sampling rounds of the monitoring wells. The sampling procedures followed are those described in the Sampling Plan referenced above. Chain-of-custody records for all sampling performed at the site are included with the relevant analytical data reports.

The average relative percent difference for the offsite well sampling was 8.3 percent. The average relative percent difference for the first and third sampling rounds of the monitoring wells was 13.1 percent and 11.6 percent, respectively. These values convert to an overall average relative percent difference for all duplicates of 11.0 percent.

LABORATORY RESULTS

Laboratory quality control procedures involved adhering to the documentation procedures specified in the Sampling Plan (CH2M HILL, 1990), calibrating the instruments, and analyzing laboratory blank and spiked samples as specified in the Quality Assurance/Quality Control Plan (CH2M HILL, 1990).

Chapter 8

HRS SCORING

Based on the available information in the literature and the additional information obtained from the expanded site investigation, the BLM Stateline Dump Site was re-scored according to EPA's Hazard Ranking System. The site received a score of 2.5, 26 points below the 28.5 threshold value for placement on the NPL.

The site score was based on evaluations of the groundwater and surface-water pathways. Since there are no existing or potential threats to the air and soil exposure pathways, they were not included in the scoring. This approach is consistent with EPA policy for scoring only viable pathways. Scoring sheets for the groundwater and surface-water pathways are included as Appendix H. Also included is a pathway scoring summary for each of the pathways. These summaries provide information on the assumptions made to generate factor, category, and pathway value scores.

EPA policy states that each EPA region reserves the right to score sites independent of findings presented by property owners. However, due to the large difference between the threshold value and the score of this site, it is unlikely that the site score would exceed the threshold value even if it were scored by EPA.

Chapter 9
CONCLUSIONS AND RECOMMENDATIONS

The BLM conducted a site investigation in 1988 that resulted in a high HRS score. However, there were data gaps, and assumptions were made regarding the groundwater hydrogeology and groundwater quality at the site. Therefore, BLM contracted CH2M HILL to conduct this expanded site investigation. Results of this investigation were used to rescore the site. EPA's revised HRS method was used. The HRS score for the site is 2.5. The 2.5 score is significantly below the 28.5 required for listing on the National Priorities List (NPL) and to be considered for cleanup by EPA.

Although the site does not require remediation under Superfund, some remedial measures will likely be required under state statute.

Abandoned landfills that do not contain hazardous wastes are regulated by the California Regional Water Quality Control Board (RWQCB) under Title 23 CCR Chapter 15 and the California Integrated Waste Management Board (CIWMB) under Title 14 CCR Division 7 Chapter 3. Abandoned landfills that contain wastes determined to be hazardous (Title 22 CCR Chapter 30) are regulated by the California Department of Health Services.

Two alternatives for the site have been identified:

- Closure in Place
- Clean Closure (removal to a permitted landfill)

These two alternatives are discussed briefly in this section.

CLOSURE IN PLACE

The first alternative is to leave the remaining waste in place and close the landfill to comply with current regulations. The closure would require placement of an impermeable cover and long-term monitoring of groundwater, surface water, and landfill gas.

To close the material in place, the landfill would require permitting by the RWQCB and the CIWMB as a closed Class III solid waste facility. This permitting process is quite lengthy. Engineered design sheets would be required for permitting and closure construction. Actual compliance permits would include:

- Compliance with the California Environmental Quality Act and National Environmental Policy Act

- Submittal of a Report of Waste Discharge, Operations Plan, Environmental Monitoring and Sampling Plan, and a Closure and Postclosure Maintenance Plan to the RWQCB

- Submittal of a Solid Waste Facility Permit, Report of Facility Information, Environmental Monitoring and Sampling Plan, and Final Closure and Postclosure Maintenance Plan to the CIWMB

- Financial assurance guarantees for both the RWQCB and the CIWMB for the 30-year postclosure period

Because hazardous levels have been identified in previous samples (Weston, 1988), additional sampling will likely be required to determine that the inplace wastes are not hazardous and meet the requirements for Class III landfill disposal. A detailed profile of the waste, sampling of the waste, and sampling of soil beneath the waste will likely be required prior to approval of closure as a Class III landfill. If the waste or underlying soils are found to contain constituents in excess of hazardous levels, then future remediation would be regulated by the California Department of Health Services. It would then become more expensive and unlikely that it would be closed in place. And if the material were excavated and removed, it would require disposal in a Class I hazardous waste facility.

CLEAN CLOSURE

The second site alternative is to remove the waste to a permitted facility. Because hazardous levels have been identified in previous samples (Weston, 1988), sampling of the waste will be required to determine that the waste does not contain constituents in excess of hazardous levels and is therefore allowed to go to a Class III facility for disposal. Sampling should include a detailed profile of the waste, sampling of the waste, and sampling of soil beneath the waste. If the waste or underlying soils are found to contain constituents in excess of hazardous levels, then excavation and removal to a Class I hazardous waste facility would be required.

At a minimum, waste sampling should include TTLC constituents and STLC constituents in Title 22 CCR Section 66699. It is also recommended that STLC constituents be analyzed under both citric acid and deionized water extraction.

The constituents identified in the waste stream will determine the class of landfill able to accept the waste materials. Prior to disposal at a specific site, approval of waste disposal at the site will be required from the RWQCB, CIWMB, and local county agencies. A special "one-time" waste quantity variance may be required for the selected landfill to receive the waste stream, in order not to exceed their daily tonnage limit.

Section 10
BIBLIOGRAPHY

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Appendix A

INFILTRATION TEST CALCULATION SHEETS

Notation Used In Calculations for:

BLM STATELINE DUMP INFILTRATION TESTS

d_R = Inner diameter of inside ring

d_B = Inner diameter of water supply barrel

Δh_R = Change in water level in inside ring since last reading

Δh_B = Change in water level in water supply barrel since last reading

r_R = Radius of inside ring

r_B = Radius of water supply barrel

I = Average infiltration rate over course of the test

BLM STATELINE DUMP INFILTRATION TEST 1

Test Location: BLMIT-1

TEST APPARATUS:

Outside Ring ID = 1.28 ft.
Inside Ring ID = 0.85 ft. = d_R
Barrel ID = 1.87 ft. = d_B
Constant Head - Yes
Measuring pt. - top of black line next to level tube

DATE	TIME (t)	Δt (min)	ELAPSED t (hr)	READING (ft)	Δh_B (ft)	Δh_R (ft)	INCREMENTAL INFILTRATION RATE (in/hr)
6/11/90	14:38	0	0	1.140	0.000	0.000	0.000
6/11/90	15:00	22	0.367	1.160	0.020	0.097	3.168
6/11/90	15:19	19	0.683	1.175	0.015	0.073	2.751
6/11/90	17:00	101	2.367	1.265	0.090	0.436	3.105
6/12/90	8:30	930	17.867	1.770	0.505	2.444	1.892
6/12/90	9:17	47	18.650	1.785	0.015	0.073	1.112
6/12/90	10:49	92	20.183	1.825	0.040	0.194	1.515
6/12/90	11:05	16	20.450	1.835	0.010	0.048	2.178

INFILTRATION RATE CALCULATION:

$$\Delta h_R = \frac{\Delta h_B r_B^2}{r_R^2} \rightarrow \Delta h_R = 4.84 \Delta h_B$$

Average rate over test:

$$I = \frac{(1.835 - 1.140\,ft)(4.84)(12\,in/ft)}{1{,}227\,min} \times 60\,\frac{min}{hr} = 1.97\,\frac{in}{hr}$$

BLM STATELINE DUMP INFILTRATION TEST 2

Test Location: BLMIT-2

TEST APPARATUS:

Outside Ring ID = 1.110 ft
Inside Ring ID = 0.86 ft
Constant Head - Yes
Barrel ID = 1.870 ft

DATE	TIME (t)	Δt (min)	ELAPSED t (hr)	READING (ft)	Δh_B (ft)	Δh_R (ft)	INCREMENTAL INFILTRATION RATE (in/hr)
6/12/90	12:45	0	0	0.195	0.000	0.000	0.000
6/12/90	13:37	52	0.867	0.295	0.100	0.473	6.546
6/12/90	14:43	66	1.967	0.430	0.135	0.638	6.963
6/12/90	15:55	72	3.167	0.550	0.120	0.567	5.674
6/12/90	16:50	55	4.083	0.635	0.085	0.402	5.261
6/13/90	8:42	952	19.950	2.045	1.410	6.666	5.042
6/13/90	9:42	60	20.950	2.138	0.093	0.440	5.276

INFILTRATION RATE CALCULATION:

$$\Delta h_R = \frac{\Delta h_B r_B^2}{r_R^2} \rightarrow \Delta h_R = 4.73 \Delta h_B$$

Average rate over test:

$$I = \frac{(2.138 - 0.195\,ft)(4.728)(12\,in/ft)}{20.95\,hr} = 5.26\,\frac{in}{hr}$$

BLM STATELINE DUMP INFILTRATION TEST 3

Test Location: BLMIT-3

TEST APPARATUS:

Outside Ring ID = 1.290 ft
Inside Ring ID = 1.00 ft
Constant Head - Yes
Barrel ID = 1.880 ft

DATE	TIME (t)	Δt (min)	ELAPSED t (hr)	READING (ft)	Δh_B (ft)	Δh_R (ft)	INCREMENTAL INFILTRATION RATE (in/hr)
6/12/90	12:50	0	0	0.830	0.000	0.000	0.000
6/12/90	13:38	48	0.800	0.840	0.010	0.035	0.530
6/12/90	14:39	61	1.817	0.865	0.025	0.088	1.043
6/12/90	15:53	74	3.050	0.870	0.005	0.018	0.172
6/12/90	16:48	55	3.967	0.875	0.005	0.018	0.231
6/13/90	8:40	952	19.833	0.920	0.045	0.159	0.120
6/13/90	9:40	60	20.833	0.927	0.007	0.025	0.297

INFILTRATION RATE CALCULATION:

$$\Delta h_R = \frac{\Delta h_B r_B^2}{r_R^2} \rightarrow \Delta h_R = 3.53 \Delta h_B$$

Average rate over test:

$$I = \frac{(0.927 - 0.830\,ft)(3.534)(12\,in/ft)}{20.833\,hr} = 0.20\,\frac{in}{hr}$$

BLM STATELINE DUMP INFILTRATION TEST 4

Test Location: BLMIT-4

TEST APPARATUS:

Outside Ring ID = 1.290 ft
Inside Ring ID = 1.00 ft
Constant Head - Yes
Barrel ID = 1.900 ft

DATE	TIME (t)	Δt (min)	ELAPSED t (hr)	READING (ft)	Δh_B (ft)	Δh_R (ft)	INCREMENTAL INFILTRATION RATE (in/hr)
6/11/90	15:21	0	0	0.760	0.000	0.000	0.000
6/11/90	16:54	93	1.550	0.785	0.025	0.090	0.699
6/12/90	8:33	939	17.200	0.830	0.045	0.162	0.125
6/12/90	9:14	41	17.883	0.830	0.000	0.000	0.000
6/12/90	10:51	97	19.500	0.832	0.002	0.007	0.054
6/12/90	11:03	12	19.700	0.832	0.000	0.000	0.000

INFILTRATION RATE CALCULATION:

$$\Delta h_R = \frac{\Delta h_B r_B^2}{r_R^2} \quad \rightarrow \quad \Delta h_R = 3.61 \Delta h_B$$

Average rate over test:

$$I = \frac{(0.832 - 0.760\,ft)(3.610)(12\,in/ft)}{19.70\,hr} = 0.16\,\frac{in}{hr}$$

BLM STATELINE DUMP INFILTRATION TEST 5

Test Location: BLMIT-5

TEST APPARATUS:

Outside Ring ID = 1.146 ft
Inside Ring ID = 0.823 ft
Constant Head - Yes
Barrel ID = 1.880 ft

DATE	TIME (t)	Δt (min)	ELAPSED t (hr)	READING (ft)	Δh_B (ft)	Δh_R (ft)	INCREMENTAL INFILTRATION RATE (in/hr)
6/13/90	12:17	0	0	0.365	0.000	0.000	0.000
6/13/90	12:28	11	0.183	0.555	0.190	0.991	64.893
6/13/90	12:47	19	0.500	0.870	0.315	1.644	62.286
6/13/90	13:08	21	0.850	1.200	0.330	1.722	59.038
6/13/90	13:30	22	1.217	1.518	0.318	1.659	54.305
6/13/90	13:52	22	1.583	1.833	0.315	1.644	53.793
6/13/90	14:21	29	2.067	2.188	0.355	1.852	45.990
6/13/90	14:40	19	2.383	2.545	0.357	1.863	70.591

INFILTRATION RATE CALCULATION:

$$\Delta h_R = \frac{\Delta h_B r_B^2}{r_R^2} \rightarrow \Delta h_R = 5.22\,\Delta h_B$$

Average rate over test:

$$I = \frac{(2.545 - 0.365\,ft)(5.218)(12\,in/ft)}{2.383\,hr} = 57.28\,\frac{in}{hr}$$

Notes: Very rapid infiltration rate. Filling of outer ring is required often. Level in inner ring dropping faster than float assembly can provide (i.e. even with constant trickle of water entering inner ring, the level is dropping). This suggests that the infiltration is actually higher than that being measured.

BLM STATELINE DUMP INFILTRATION TEST 6

Test Location: BLMIT-6

TEST APPARATUS:

Outside Ring ID = 1.281 ft
Inside Ring ID = 0.854 ft
Constant Head - Yes
Barrel ID = 1.870 ft

DATE	TIME (t)	Δt (min)	ELAPSED t (hr)	READING (ft)	Δh_B (ft)	Δh_R (ft)	INCREMENTAL INFILTRATION RATE (in/hr)
6/13/90	12:09	0	0	0.331	0.000	0.000	0.000
6/13/90	12:26	17	0.283	0.409	0.078	0.374	15.840
6/13/90	12:45	19	0.600	0.510	0.101	0.484	18.352
6/13/90	13:05	20	0.933	0.599	0.089	0.427	15.363
6/13/90	13:27	22	1.300	0.703	0.104	0.499	16.320
6/13/90	13:54	27	1.750	0.815	0.112	0.537	14.321
6/13/90	14:23	29	2.233	0.932	0.117	0.561	13.929
6/13/90	14:41	18	2.533	1.000	0.068	0.326	13.042

INFILTRATION RATE CALCULATION:

$$\Delta h_R = \frac{\Delta h_B r_B^2}{r_R^2} \quad \rightarrow \quad \Delta h_R = 4.80 \Delta h_B$$

Average rate over test:

$$I = \frac{(1.000 - 0.331\,ft)(4.795)(12\,in/ft)}{2.533\,hr} = 15.20\,\frac{in}{hr}$$

Notes: Very rapid infiltration rate. Filling of outer ring is required often. Level in inner ring dropping faster than float assembly can provide (i.e. even with constant trickle of water entering inner ring, the level is dropping). This suggests that the infiltration is actually higher than that being measured.

Appendix B

OFFSITE WELL SAMPLING ANALYTICAL DATA SHEETS

Sample results from the following wells are included in this appendix (see Figure 11 for location):

OS-12
OS-25
OS-125 (duplicate of OS-25)
OS-28
OS-31
OS-99 (Field Blank)

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CASE NARRATIVE
General Chemistry
26846

I. Holding Time: All criteria met.

II. Analysis:

A. Calibration: Acceptance criteria met.
B. Blanks: Acceptance criteria met.
C. Matrix Spike: Acceptance criteria met.
D. Duplicate Analysis: Acceptance criteria met.
E. Lab Control Sample: Acceptance criteria met.
F. Other: None.

III. I certify that this data package is in compliance with the terms and conditions agreed to by the client and CH2M HILL, both technically and for completeness, for other than the conditions detailed above.

SIGNED: Randall Wright
Randall L. Wright
General Chemistry Supervisor

DATE: 7/17/90

CASE NARRATIVE
Metals

26816

I. Holding Time:
All holding times were met.

II. Analysis:

A. Blanks:
All acceptance criteria were met.

B. Calibration:
All acceptance criteria were met.

C. ICP Interference Check Sample:
All acceptance criteria were met.

D. Spike Sample Analysis:
All acceptance criteria were met.

E. Duplicate Sample Analysis:
The relative percent difference of Arsenic, Lead, Cadimium and Silver in sample 26911-4 (3bs) and its duplicate exceeded our acceptance criteria of ± 20%.

F. Laboratory Control Sample Analysis:
All acceptance criteria were met.

G. ICP Serial Dilution:
Not required for this level QC.

H. Other:
None.

III. I certify that this data package is in compliance with the terms and conditions agreed to by the client and CH2M HILL, both technically and for completeness, for other than the conditions detailed above.

Signed: Fred Bickell Date: 7/17/90

Fred Bickell
Cations Supervisor

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REPORT OF ANALYTICAL RESULTS

Date: 07/17/90
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Client: CH2M HILL/RDD
P.O. BOX 492478
REDDING, CA 96049

Atten: MR. MIKE SMITH

Project Number: RDD28631.A0.30
BLM STATELINE DUMP
Laboratory Number: 26816
Date Received: 06/15/90

Sample Description: OS-12
Laboratory Sample Number: 26816004 Date Collected: 06/14/90 Matrix: WATER

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Silver	EPA200.7/SW6010	3	<3	ug/L	07/02/90
Aluminum	EPA200.7/SW6010	8	9	ug/L	07/02/90
Arsenic	EPA206.2/SW7060	0.5	2.5	ug/L	06/26/90
Barium	EPA200.7/SW6010	1	5	ug/L	07/02/90
Beryllium	EPA200.7/SW6010	1	<1	ug/L	07/02/90
Calcium	EPA200.7/SW6010	50	35400	ug/L	07/02/90
Cadmium	EPA200.7/SW6010	1	<1	ug/L	07/02/90
Cobalt	EPA200.7/SW6010	4	<4	ug/L	07/02/90
Chromium	EPA200.7/SW6010	3	<3	ug/L	07/02/90
Copper	EPA200.7/SW6010	3	3	ug/L	07/02/90
Dissolved Organic Carbon	EPA415.2	1.0	1.4	mg/L	07/03/90
Fluoride	EPA340.2	0.05	0.13	mg/L	06/25/90
Iron	EPA200.7/SW6010	20	<20	ug/L	07/02/90
Mercury	EPA245.1/SW7470	0.2	<0.2	ug/L	06/29/90
Chloride	EPA300.0	1.0	3.5	mg/L	06/18/90
Sulfate	EPA300.0	1.0	20.7	mg/L	06/18/90
Potassium	EPA200.7/SW6010	350	4820	ug/L	07/02/90
Magnesium	EPA200.7/SW6010	24	19700	ug/L	07/02/90
Manganese	EPA200.7/SW6010	1	<1	ug/L	07/02/90
Sodium	EPA200.7/SW6010	50	14400	ug/L	07/02/90
Nickel	EPA200.7/SW6010	6	<6	ug/L	07/02/90
Lead	EPA239.2/SW7421	0.8	0.9	ug/L	06/26/90
pH	EPA150.1	----	8.03	units	06/15/90
Antimony	EPA200.7/SW6010	10	<10	ug/L	07/02/90
Selenium	EPA270.2/SW7740	0.8	<0.8	ug/L	06/26/90
Total Dissolved Solids	EPA160.1	3	238	mg/L	06/21/90
Thallium	EPA279.2/SW7841	0.6	<0.6	ug/L	06/25/90
Total Organic Carbon	EPA415.2	1.0	1.0	mg/L	07/03/90
Total Organic Halogen as CL-	SW9020	5.0	140.0	ug/L	06/27/90
Vanadium	EPA200.7/SW6010	3	20	ug/L	07/02/90
Zinc	EPA200.7/SW6010	3	84	ug/L	07/02/90

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

Reviewed by: J Hawley

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REPORT OF ANALYTICAL RESULTS

Date: 07/17/90
Page: 1 of 5

Client: CH2M HILL/RDD
P.O. BOX 492478
REDDING, CA 96049

Atten: MR. MIKE SMITH

Project Number: RDD28361.A0.30
B.L.M.-STATELINE DUMP
Laboratory Number: 26788
Date Received: 06/14/90

Sample Description: 25 OS25
Laboratory Sample Number: 26788001 Date Collected: 06/12/90 Matrix: WATER

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Silver	EPA200.7/SW6010	3	<3	ug/L	06/19/90
Aluminum	EPA200.7/SW6010	8	9	ug/L	06/19/90
Arsenic	EPA206.2/SW7060	0.5	2.3	ug/L	06/20/90
Barium	EPA200.7/SW6010	1	8	ug/L	06/19/90
Beryllium	EPA200.7/SW6010	1	<1	ug/L	06/19/90
Calcium	EPA200.7/SW6010	50	20000	ug/L	06/19/90
Cadmium	EPA200.7/SW6010	1	<1	ug/L	06/19/90
Cobalt	EPA200.7/SW6010	4	<4	ug/L	06/19/90
Chromium	EPA200.7/SW6010	3	<3	ug/L	06/19/90
Copper	EPA200.7/SW6010	3	<3	ug/L	06/19/90
Dissolved Organic Carbon	EPA415.2	1.0	3.2	mg/L	07/03/90
Fluoride	EPA340.2	0.05	0.17	mg/L	06/19/90
Iron	EPA200.7/SW6010	20	30	ug/L	06/19/90
Mercury	EPA245.1/SW7470	0.2	<0.2	ug/L	06/22/90
Chloride	EPA300.0	1.0	3.0	mg/L	06/14/90
Sulfate	EPA300.0	1.0	8.5	mg/L	06/14/90
Potassium	EPA200.7/SW6010	350	3000	ug/L	06/19/90
Magnesium	EPA200.7/SW6010	24	11000	ug/L	06/19/90
Manganese	EPA200.7/SW6010	1	14	ug/L	06/19/90
Sodium	EPA200.7/SW6010	50	11400	ug/L	06/19/90
Nickel	EPA200.7/SW6010	6	<6	ug/L	06/19/90
Lead	EPA239.2/SW7421	0.8	<0.8	ug/L	06/19/90
pH	EPA150.1	----	6.88	units	06/14/90
Antimony	EPA200.7/SW6010	10	<10	ug/L	06/19/90
Selenium	EPA270.2/SW7740	0.8	<0.8	ug/L	06/21/90
Total Dissolved Solids	EPA160.1	3	122	mg/L	06/18/90
Thallium	EPA279.2/SW7841	0.6	<0.6	ug/L	06/25/90
Total Organic Carbon	EPA415.2	1.0	2.8	mg/L	07/03/90
Vanadium	EPA200.7/SW6010	3	30	ug/L	06/19/90
Zinc	EPA200.7/SW6010	3	350	ug/L	06/19/90

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

Reviewed by: J Hawley

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REPORT OF ANALYTICAL RESULTS

Date: 07/17/90
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Client: CH2M HILL/RDD
P.O. BOX 492478
REDDING, CA 96049

Project Number: RDD28361.A0.30
B.L.M.-STATELINE DUMP
Laboratory Number: 26788
Date Received: 06/14/90

Atten: MR. MIKE SMITH

Sample Description: OS125
Laboratory Sample Number: 26788002 Date Collected: 06/12/90 Matrix: WATER

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Silver	EPA200.7/SW6010	3	<3	ug/L	06/19/90
Aluminum	EPA200.7/SW6010	8	12	ug/L	06/19/90
Arsenic	EPA206.2/SW7060	0.5	2.3	ug/L	06/20/90
Barium	EPA200.7/SW6010	1	7	ug/L	06/19/90
Beryllium	EPA200.7/SW6010	1	<1	ug/L	06/19/90
Calcium	EPA200.7/SW6010	50	20400	ug/L	06/19/90
Cadmium	EPA200.7/SW6010	1	<1	ug/L	06/19/90
Cobalt	EPA200.7/SW6010	4	<4	ug/L	06/19/90
Chromium	EPA200.7/SW6010	3	<3	ug/L	06/19/90
Copper	EPA200.7/SW6010	3	<3	ug/L	06/19/90
Dissolved Organic Carbon	EPA415.2	1.0	3.2	mg/L	07/03/90
Fluoride	EPA340.2	0.05	0.16	mg/L	06/19/90
Iron	EPA200.7/SW6010	20	24	ug/L	06/19/90
Mercury	EPA245.1/SW7470	0.2	<0.2	ug/L	06/22/90
Chloride	EPA300.0	1.0	2.9	mg/L	06/14/90
Sulfate	EPA300.0	1.0	8.3	mg/L	06/14/90
Potassium	EPA200.7/SW6010	350	3100	ug/L	06/19/90
Magnesium	EPA200.7/SW6010	24	11200	ug/L	06/19/90
Manganese	EPA200.7/SW6010	1	14	ug/L	06/19/90
Sodium	EPA200.7/SW6010	50	11700	ug/L	06/19/90
Nickel	EPA200.7/SW6010	6	<6	ug/L	06/19/90
Lead	EPA239.2/SW7421	0.8	<0.8	ug/L	06/19/90
pH	EPA150.1	----	6.92	units	06/14/90
Antimony	EPA200.7/SW6010	10	<10	ug/L	06/19/90
Selenium	EPA270.2/SW7740	0.8	<0.8	ug/L	06/21/90
Total Dissolved Solids	EPA160.1	3	171	mg/L	06/18/90
Thallium	EPA279.2/SW7841	0.6	<0.6	ug/L	06/25/90
Total Organic Carbon	EPA415.2	1.0	3.2	mg/L	07/03/90
Total Organic Halogen as CL-	SW9020	5.0	48	ug/L	06/27/90
Vanadium	EPA200.7/SW6010	3	30	ug/L	06/19/90
Zinc	EPA200.7/SW6010	3	380	ug/L	06/19/90

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

Reviewed by: Hawley

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REPORT OF ANALYTICAL RESULTS

Date: 07/17/90
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Client: CH2M HILL/RDD
P.O. BOX 492478
REDDING, CA 96049

Atten: MR. MIKE SMITH

Project Number: RDD28361.A0.30
B.L.M.-STATELINE DUMP
Laboratory Number: 26788
Date Received: 06/14/90

Sample Description: OS27
Laboratory Sample Number: 26788004 Date Collected: 06/12/90 Matrix: WATER

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Silver	EPA200.7/SW6010	3	<3	ug/L	06/19/90
Aluminum	EPA200.7/SW6010	8	10	ug/L	06/19/90
Arsenic	EPA206.2/SW7060	0.5	1.5	ug/L	06/20/90
Barium	EPA200.7/SW6010	1	8	ug/L	06/19/90
Beryllium	EPA200.7/SW6010	1	<1	ug/L	06/19/90
Calcium	EPA200.7/SW6010	50	39700	ug/L	06/19/90
Cadmium	EPA200.7/SW6010	1	<1	ug/L	06/19/90
Cobalt	EPA200.7/SW6010	4	<4	ug/L	06/19/90
Chromium	EPA200.7/SW6010	3	<3	ug/L	06/19/90
Copper	EPA200.7/SW6010	3	<3	ug/L	06/19/90
Dissolved Organic Carbon	EPA415.2	1.0	3.0	mg/L	07/03/90
Fluoride	EPA340.2	0.05	0.12	mg/L	06/19/90
Iron	EPA200.7/SW6010	20	31	ug/L	06/19/90
Mercury	EPA245.1/SW7470	0.2	<0.2	ug/L	06/22/90
Chloride	EPA300.0	1.0	9.1	mg/L	06/14/90
Sulfate	EPA300.0	1.0	21.1	mg/L	06/14/90
Potassium	EPA200.7/SW6010	350	4210	ug/L	06/19/90
Magnesium	EPA200.7/SW6010	24	19800	ug/L	06/19/90
Manganese	EPA200.7/SW6010	1	<1	ug/L	06/19/90
Sodium	EPA200.7/SW6010	50	19000	ug/L	06/19/90
Nickel	EPA200.7/SW6010	6	<6	ug/L	06/19/90
Lead	EPA239.2/SW7421	0.8	1.1	ug/L	06/19/90
pH	EPA150.1	----	7.46	units	06/14/90
Antimony	EPA200.7/SW6010	10	<10	ug/L	06/19/90
Selenium	EPA270.2/SW7740	0.8	<0.8	ug/L	06/21/90
Total Dissolved Solids	EPA160.1	3	231	mg/L	06/18/90
Thallium	EPA279.2/SW7841	0.6	<0.6	ug/L	06/25/90
Total Organic Carbon	EPA415.2	1.0	2.4	mg/L	07/03/90
Total Organic Halogen as CL-	SW9020	5.0	6.8	ug/L	06/28/90
Vanadium	EPA200.7/SW6010	3	25	ug/L	06/19/90
Zinc	EPA200.7/SW6010	3	9	ug/L	06/19/90

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

Reviewed by: J. Hawley

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REPORT OF ANALYTICAL RESULTS

Date: 07/17/90
Page: 1 of 2

Client: CH2M HILL/RDD
P.O. BOX 492478
REDDING, CA 96049

Project Number: RDD28631.A0.30
BLM STATELINE DUMP
Laboratory Number: 26846
Date Received: 06/21/90

Atten: MR. MIKE SMITH

Sample Description: OS-28 GRNDWTR
Laboratory Sample Number: 26846001 Date Collected: 06/20/90 Matrix: WATER

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Silver	EPA200.7/SW6010	3	<3	ug/L	07/02/90
Aluminum	EPA200.7/SW6010	8	<8	ug/L	07/02/90
Arsenic	EPA206.2/SW7060	0.5	0.9	ug/L	06/26/90
Barium	EPA200.7/SW6010	1	5	ug/L	07/02/90
Beryllium	EPA200.7/SW6010	1	<1	ug/L	07/02/90
Calcium	EPA200.7/SW6010	50	32800	ug/L	07/02/90
Cadmium	EPA200.7/SW6010	1	<1	ug/L	07/02/90
Cobalt	EPA200.7/SW6010	4	<4	ug/L	07/02/90
Chromium	EPA200.7/SW6010	3	<3	ug/L	07/02/90
Copper	EPA200.7/SW6010	3	<3	ug/L	07/02/90
Dissolved Organic Carbon	EPA415.2	1.0	1.7	mg/L	07/09/90
Fluoride	EPA340.2	0.05	0.10	mg/L	06/25/90
Iron	EPA200.7/SW6010	20	<20	ug/L	07/02/90
Mercury	EPA245.1/SW7470	0.2	<0.2	ug/L	06/29/90
Chloride	EPA300.0	1.0	4.5	mg/L	06/21/90
Sulfate	EPA300.0	1.0	9.7	mg/L	06/21/90
Potassium	EPA200.7/SW6010	350	2500	ug/L	07/02/90
Magnesium	EPA200.7/SW6010	24	18500	ug/L	07/02/90
Manganese	EPA200.7/SW6010	1	<1	ug/L	07/02/90
Sodium	EPA200.7/SW6010	50	12500	ug/L	07/02/90
Nickel	EPA200.7/SW6010	6	<6	ug/L	07/02/90
Lead	EPA239.2/SW7421	0.8	<0.8	ug/L	06/26/90
pH	EPA150.1	----	7.71	units	06/21/90
Antimony	EPA200.7/SW6010	10	<10	ug/L	07/02/90
Selenium	EPA270.2/SW7740	0.8	<0.8	ug/L	06/26/90
Total Dissolved Solids	EPA160.1	3	208	mg/L	06/26/90
Thallium	EPA279.2/SW7841	0.6	<0.6	ug/L	06/25/90
Total Organic Carbon	EPA415.2	1.0	1.2	mg/L	07/09/90
Total Organic Halogen as CL-	SW9020	5	77	ug/L	06/28/90
Vanadium	EPA200.7/SW6010	3	13	ug/L	07/02/90
Zinc	EPA200.7/SW6010	3	<3	ug/L	07/02/90

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

Reviewed by:

INRPRPT(v900202)

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REPORT OF ANALYTICAL RESULTS

Date: 07/17/90
Page: 3 of 5

Client: CH2M HILL/RDD
P.O. BOX 492478
REDDING, CA 96049

Project Number: RDD28361.A0.30
B.L.M.-STATELINE DUMP
Laboratory Number: 26788
Date Received: 06/14/90

Atten: MR. MIKE SMITH

Sample Description: OS31
Laboratory Sample Number: 26788003 Date Collected: 06/11/90 Matrix: WATER

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Silver	EPA200.7/SW6010	3	<3	ug/L	06/19/90
Aluminum	EPA200.7/SW6010	8	<8	ug/L	06/19/90
Arsenic	EPA206.2/SW7060	0.5	0.5	ug/L	06/20/90
Barium	EPA200.7/SW6010	1	5	ug/L	06/19/90
Beryllium	EPA200.7/SW6010	1	<1	ug/L	06/19/90
Calcium	EPA200.7/SW6010	50	16900	ug/L	06/19/90
Cadmium	EPA200.7/SW6010	1	<1	ug/L	06/19/90
Cobalt	EPA200.7/SW6010	4	<4	ug/L	06/19/90
Chromium	EPA200.7/SW6010	3	<3	ug/L	06/19/90
Copper	EPA200.7/SW6010	3	<3	ug/L	06/19/90
Dissolved Organic Carbon	EPA415.2	1.0	1.6	mg/L	07/03/90
Fluoride	EPA340.2	0.05	0.11	mg/L	06/19/90
Iron	EPA200.7/SW6010	20	<20	ug/L	06/19/90
Mercury	EPA245.1/SW7470	0.2	<0.2	ug/L	06/22/90
Chloride	EPA300.0	1.0	1.7	mg/L	06/14/90
Sulfate	EPA300.0	1.0	2.5	mg/L	06/14/90
Potassium	EPA200.7/SW6010	350	1600	ug/L	06/19/90
Magnesium	EPA200.7/SW6010	24	83200	ug/L	06/19/90
Manganese	EPA200.7/SW6010	1	<1	ug/L	06/19/90
Sodium	EPA200.7/SW6010	50	7090	ug/L	06/19/90
Nickel	EPA200.7/SW6010	6	<6	ug/L	06/19/90
Lead	EPA239.2/SW7421	0.8	1.4	ug/L	06/19/90
pH	EPA150.1	----	7.38	units	06/14/90
Antimony	EPA200.7/SW6010	10	13	ug/L	06/19/90
Selenium	EPA270.2/SW7740	0.8	<0.8	ug/L	06/21/90
Total Dissolved Solids	EPA160.1	3	118	mg/L	06/18/90
Thallium	EPA279.2/SW7841	0.6	<0.6	ug/L	06/25/90
Total Organic Carbon	EPA415.2	1.0	1.0	mg/L	07/03/90
Total Organic Halogen as CL-	SW9020	5.0	<5.0	ug/L	06/27/90
Vanadium	EPA200.7/SW6010	3	11	ug/L	06/19/90
Zinc	EPA200.7/SW6010	3	52	ug/L	06/19/90

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

Reviewed by: Hawley

INRPRPT(v900202)

REPORT OF ANALYTICAL RESULTS

Client: CH2M HILL/RDD
P.O. BOX 492478
REDDING, CA 96049

Atten: MR. MIKE SMITH

Project Number: RDD28631.AO.30
BLM STATELINE DUMP
Laboratory Number: 26816
Date Received: 06/15/90

Sample Description: OS-99
Laboratory Sample Number: 26816006 Date Collected: 06/14/90 Matrix: WATER

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Silver	EPA200.7/SW6010	3	<3	ug/L	07/02/90
Aluminum	EPA200.7/SW6010	8	9	ug/L	07/02/90
Arsenic	EPA206.2/SW7060	0.5	<0.5	ug/L	06/26/90
Barium	EPA200.7/SW6010	1	<1	ug/L	07/02/90
Beryllium	EPA200.7/SW6010	1	<1	ug/L	07/02/90
Calcium	EPA200.7/SW6010	50	114	ug/L	07/02/90
Cadmium	EPA200.7/SW6010	1	<1	ug/L	07/02/90
Cobalt	EPA200.7/SW6010	4	<4	ug/L	07/02/90
Chromium	EPA200.7/SW6010	3	<3	ug/L	07/02/90
Copper	EPA200.7/SW6010	3	3	ug/L	07/02/90
Dissolved Organic Carbon	EPA415.2	1.0	<1.0	mg/L	07/03/90
Fluoride	EPA340.2	0.05	<0.05	mg/L	06/25/90
Iron	EPA200.7/SW6010	20	27	ug/L	07/02/90
Mercury	EPA245.1/SW7470	0.2	<0.2	ug/L	06/29/90
Chloride	EPA300.0	1.0	<1.0	mg/L	06/18/90
Sulfate	EPA300.0	1.0	<1.0	mg/L	06/18/90
Potassium	EPA200.7/SW6010	350	<350	ug/L	07/02/90
Magnesium	EPA200.7/SW6010	24	<24	ug/L	07/02/90
Manganese	EPA200.7/SW6010	1	1	ug/L	07/02/90
Sodium	EPA200.7/SW6010	50	<50	ug/L	07/02/90
Nickel	EPA200.7/SW6010	6	<6	ug/L	07/02/90
Lead	EPA239.2/SW7421	0.8	<0.8	ug/L	06/26/90
pH	EPA150.1	----	5.70	units	06/15/90
Antimony	EPA200.7/SW6010	10	<10	ug/L	07/02/90
Selenium	EPA270.2/SW7740	0.8	<0.8	ug/L	06/26/90
Total Dissolved Solids	EPA160.1	3	3	mg/L	06/21/90
Thallium	EPA279.2/SW7841	0.6	<0.6	ug/L	06/25/90
Total Organic Carbon	EPA415.2	1.0	<1.0	mg/L	07/03/90
Total Organic Halogen as CL-	SW9020	5.0	8.4	ug/L	06/28/90
Vanadium	EPA200.7/SW6010	3	<3	ug/L	07/02/90
Zinc	EPA200.7/SW6010	3	4	ug/L	07/02/90

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

Reviewed by: J Hawley

INRPRPT(v900202)

REPORT OF ANALYTICAL RESULTS

Date: 07/17/90
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Client: CH2M HILL/RDD
P.O. BOX 492478
REDDING, CA 96049

Atten: MR. MIKE SMITH

Project Number: RDD28631.A0.30
BLM STATELINE DUMP
Laboratory Number: 26816
Date Received: 06/15/90

Sample Description: METHOD BLANK FOR WATER
Laboratory Sample Number: 26816ZW1   Date Collected: 06/15/90   Matrix: WATER BLANK

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Silver	EPA200.7/SW6010	3	<3	ug/L	07/02/90
Aluminum	EPA200.7/SW6010	8	11	ug/L	07/02/90
Arsenic	EPA206.2/SW7060	0.5	<0.5	ug/L	06/26/90
Barium	EPA200.7/SW6010	1	<1	ug/L	07/02/90
Beryllium	EPA200.7/SW6010	1	<1	ug/L	06/27/90
Calcium	EPA200.7/SW6010	50	71	ug/L	06/27/90
Cadmium	EPA200.7/SW6010	1	<1	ug/L	06/27/90
Cobalt	EPA200.7/SW6010	4	<4	ug/L	06/27/90
Chromium	EPA200.7/SW6010	3	<3	ug/L	06/27/90
Copper	EPA200.7/SW6010	3	<3	ug/L	06/27/90
Dissolved Organic Carbon	EPA415.2	1.0	<1.0	mg/L	07/03/90
Fluoride	EPA340.2	0.05	<0.05	mg/L	06/25/90
Iron	EPA200.7/SW6010	20	<20	ug/L	06/27/90
Mercury	EPA245.1/SW7470	0.2	<0.2	ug/L	06/29/90
Chloride	EPA300.0	1.0	<1.0	mg/L	06/18/90
Sulfate	EPA300.0	1.0	<1.0	mg/L	06/18/90
Potassium	EPA200.7/SW6010	350	<350	ug/L	06/27/90
Magnesium	EPA200.7/SW6010	24	<24	ug/L	06/27/90
Manganese	EPA200.7/SW6010	1	<1	ug/L	06/27/90
Sodium	EPA200.7/SW6010	50	93	ug/L	06/27/90
Nickel	EPA200.7/SW6010	6	<6	ug/L	06/27/90
Lead	EPA239.2/SW7421	0.8	0.9	ug/L	06/26/90
Antimony	EPA200.7/SW6010	10	<10	ug/L	06/27/90
Selenium	EPA270.2/SW7740	0.8	<0.8	ug/L	06/26/90
Thallium	EPA279.2/SW7841	0.6	<0.6	ug/L	06/25/90
Total Organic Carbon	EPA415.2	1.0	<1.0	mg/L	07/03/90
Vanadium	EPA200.7/SW6010	3	<3	ug/L	06/27/90
Zinc	EPA200.7/SW6010	3	17	ug/L	07/02/90

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

Reviewed by: J Hawley

INRPRPT(v900202)

REPORT OF ANALYTICAL RESULTS

Client: CH2M HILL/RDD
P.O. BOX 492478
REDDING, CA 96049

Atten: MR. MIKE SMITH

Project Number: RDD28361.A0.30
B.L.M.-STATELINE DUMP
Laboratory Number: 26788
Date Received: 06/14/90

Sample Description: METHOD BLANK
Laboratory Sample Number: 26788ZW1 Date Collected: 06/14/90 Matrix: WATER

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Silver	EPA200.7/SW6010	3	<3	ug/L	06/19/90
Aluminum	EPA200.7/SW6010	8	12	ug/L	06/19/90
Arsenic	EPA206.2/SW7060	0.5	<0.5	ug/L	06/20/90
Barium	EPA200.7/SW6010	1	<1	ug/L	06/19/90
Beryllium	EPA200.7/SW6010	1	<1	ug/L	06/19/90
Calcium	EPA200.7/SW6010	50	72	ug/L	06/19/90
Cadmium	EPA200.7/SW6010	1	<1	ug/L	06/19/90
Cobalt	EPA200.7/SW6010	4	<4	ug/L	06/19/90
Chromium	EPA200.7/SW6010	3	<3	ug/L	06/19/90
Copper	EPA200.7/SW6010	3	<3	ug/L	06/19/90
Dissolved Organic Carbon	EPA415.2	1.0	<1.0	mg/L	07/03/90
Fluoride	EPA340.2	0.05	<0.05	mg/L	06/19/90
Iron	EPA200.7/SW6010	20	<20	ug/L	06/19/90
Mercury	EPA245.1/SW7470	0.2	<0.2	ug/L	06/22/90
Chloride	EPA300.0	1.0	<1.0	mg/L	06/14/90
Sulfate	EPA300.0	1.0	<1.0	mg/L	06/14/90
Potassium	EPA200.7/SW6010	350	<350	ug/L	06/19/90
Magnesium	EPA200.7/SW6010	24	<24	ug/L	06/19/90
Manganese	EPA200.7/SW6010	1	<1	ug/L	06/19/90
Sodium	EPA200.7/SW6010	50	99	ug/L	06/19/90
Nickel	EPA200.7/SW6010	6	<6	ug/L	06/19/90
Lead	EPA239.2/SW7421	0.8	<0.8	ug/L	06/19/90
Antimony	EPA200.7/SW6010	10	<10	ug/L	06/19/90
Selenium	EPA270.2/SW7740	0.8	<0.8	ug/L	06/21/90
Thallium	EPA279.2/SW7841	0.6	<0.6	ug/L	06/25/90
Total Organic Carbon	EPA415.2	1.0	<1.0	mg/L	07/03/90
Vanadium	EPA200.7/SW6010	3	<3	ug/L	06/19/90
Zinc	EPA200.7/SW6010	3	3	ug/L	06/19/90

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

Reviewed by: Hawley

INRPRPT(v900202)

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REPORT OF ANALYTICAL RESULTS

Date: 07/17/90
Page: 2 of 2

Client: CH2M HILL/RDD
P.O. BOX 492478
REDDING, CA 96049

Atten: MR. MIKE SMITH

Project Number: RDD28631.A0.30
BLM STATELINE DUMP
Laboratory Number: 26846
Date Received: 06/21/90

Sample Description: METHOD BLANK
Laboratory Sample Number: 26846ZW1 Date Collected: 06/21/90 Matrix: WATER BLANK

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Silver	EPA200.7/SW6010	3	<3	ug/L	07/02/90
Aluminum	EPA200.7/SW6010	8	11	ug/L	07/02/90
Arsenic	EPA206.2/SW7060	0.5	<0.5	ug/L	06/26/90
Barium	EPA200.7/SW6010	1	<1	ug/L	07/02/90
Beryllium	EPA200.7/SW6010	1	<1	ug/L	07/02/90
Calcium	EPA200.7/SW6010	50	71	ug/L	07/02/90
Cadmium	EPA200.7/SW6010	1	<1	ug/L	07/02/90
Cobalt	EPA200.7/SW6010	4	<4	ug/L	07/02/90
Chromium	EPA200.7/SW6010	3	<3	ug/L	07/02/90
Copper	EPA200.7/SW6010	3	<3	ug/L	07/02/90
Dissolved Organic Carbon	EPA415.2	1.0	<1.0	mg/L	07/09/90
Fluoride	EPA340.2	0.05	<0.05	mg/L	06/25/90
Iron	EPA200.7/SW6010	20	<20	ug/L	07/02/90
Mercury	EPA245.1/SW7470	0.2	<0.2	ug/L	06/29/90
Chloride	EPA300.0	1.0	<1.0	mg/L	06/21/90
Sulfate	EPA300.0	1.0	<1.0	mg/L	06/21/90
Potassium	EPA200.7/SW6010	350	<350	ug/L	07/02/90
Magnesium	EPA200.7/SW6010	24	<24	ug/L	07/02/90
Manganese	EPA200.7/SW6010	1	<1	ug/L	07/02/90
Sodium	EPA200.7/SW6010	50	93	ug/L	07/02/90
Nickel	EPA200.7/SW6010	6	<6	ug/L	07/02/90
Lead	EPA239.2/SW7421	0.8	0.9	ug/L	06/26/90
Antimony	EPA200.7/SW6010	10	<10	ug/L	07/02/90
Selenium	EPA270.2/SW7740	0.8	<0.8	ug/L	06/26/90
Thallium	EPA279.2/SW7841	0.6	<0.6	ug/L	06/25/90
Total Organic Carbon	EPA415.2	1.0	<1.0	mg/L	07/09/90
Vanadium	EPA200.7/SW6010	3	<3	ug/L	07/02/90
Zinc	EPA200.7/SW6010	3	17	ug/L	07/02/90

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

Reviewed by: J Hawley

INRPRPT(v900202)

CASE NARRATIVE FOR VOLATILE GAS CHROMATOGRAPHY SAMPLES

LABORATORY: CH2M HILL
CASE NO : N/A
LAB ID : 26816

CLIENT : B.L.M.
CONTRACT NO.: N/A
SDG # : N/A

I. RECEIPT

A. Date: June 15, 1990

B.

LAB ID	CLIENT ID	SAMPLE MATRIX	DATE SAMPLED	EXTRACTION DATE	ANALYSIS DATE
26816001	MW-2	Water	6/15/90	N/A	6/22,25/90
26816002	MW-3	Water	6/14/90	N/A	6/22,25/90
26816003	MW-13	Water	6/14/90	N/A	6/22,25/90
26816004	OS-12	Water	6/14/90	N/A	6/22,25/90
26816005	MW-99	Water	6/14/90	N/A	6/22,25/90
26816006	OS-99	Water	6/14/90	N/A	6/22,25/90

C. Documentation Exceptions : None encountered.

II. EXTRACTION

A. Holding Times: Medium level protocol was not performed, therefore, holding times are not applicable.

B. Extraction Exceptions : Not applicable.

III. ANALYSIS

A. Holding Times: All holding times were met.

B. Analytical Exceptions : None encountered.

000010

IV. QUALITY CONTROL

A.	Method Blank :	A method blank is a laboratory generated sample used to determine the degree to which laboratory operations may cause false positive results for these samples. No target parameters were detected in the method blanks associated with these samples.
B.	Surrogate Recoveries :	Met acceptable QC criteria.
C.	Matrix Spike Results:	Not applicable.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature. Diskette deliverables have not be provided for this data package.

Greg Jordan 7/5/90

Greg Jordan
GC Section Supervisor

Date

WLK 7/5/90

CH2M HILL
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Scientists

CASE NARRATIVE FOR VOLATILE GAS CHROMATOGRAPHY SAMPLES

LABORATORY: CH2M HILL

CLIENT : B.L.M.

CASE NO : N/A

CONTRACT NO.: N/A

LAB ID : 26788

SDG # : N/A

I. RECEIPT

A. Date: June 14, 1990

B.

LAB ID	CLIENT ID	SAMPLE MATRIX	DATE SAMPLED	EXTRACTION DATE	ANALYSIS DATE
26788001	OS25	Water	6/12/90	N/A	6/21,25/90
26788002	OS125	Water	6/12/90	N/A	6/22/90
26788003	OS31	Water	6/11/90	N/A	6/22,23/90
26788004	OS27	Water	6/12/90	N/A	6/22,23/90

C. Documentation Exceptions : None encountered.

II. EXTRACTION

A. Holding Times: Medium level protocol was not performed, therefore, holding times are not applicable.

B. Extraction Exceptions : Not applicable.

III. ANALYSIS

A. Holding Times: All holding times were met.

B. Analytical Exceptions : None encountered.

IV. QUALITY CONTROL

A. Method Blank : A method blank is a laboratory generated sample used to determine the degree to which laboratory operations may cause false positive results for these samples. No target parameters were detected in the method blanks associated with these samples.

B. Surrogate Recoveries : Met acceptable QC criteria.

C. Matrix Spike Results: Not applicable.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature. Diskette deliverables have not be provided for this data package.

Greg Jordan 7/5/90

Greg Jordan
GC Section Supervisor

Date

WLK 7/5/90

CASE NARRATIVE FOR VOLATILE GAS CHROMATOGRAPHY SAMPLES

LABORATORY: CH2M HILL

CLIENT : BLM Stateline Dump

CASE NO : N/A

CONTRACT NO.: N/A

LAB ID : 26846

SDG # : N/A

I. RECEIPT

A. Date: June 20, 1990

B.

LAB ID	CLIENT ID	SAMPLE MATRIX	DATE SAMPLED	EXTRACTION DATE	ANALYSIS DATE
26846001	OS-28 GRNWTR	Water	6/20/90	N/A	7/04/90

C. Documentation Exceptions : None encountered.

II. EXTRACTION

A. Holding Times: Medium level protocol was not performed, therefore, holding times are not applicable.

B. Extraction Exceptions : Not applicable.

III. ANALYSIS

A. Holding Times: All holding times were met.

B. Analytical Exceptions : None encountered.

000005

IV. QUALITY CONTROL

A.	Method Blank :	A method blank is a laboratory generated sample used to determine the degree to which laboratory operations may cause false positive results for these samples. No target parameters were detected in the method blanks associated with these samples.
B.	Surrogate Recoveries :	Met acceptable QC criteria.
C.	Matrix Spike Results:	Not applicable.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature. Diskette deliverables have not be provided for this data package.

Warren Lee Kidd 7/23/90

Warren Lee KIdd **Date**
Organics GC Manager

Report of Analytical Data - Purgeable Halocarbons

Client:	NA	Laboratory:	CH2M Hill/LRD	Date Sampled:	NA
Project:	NA	Lab Sample ID:	Method Blank	Date Received:	NA
Proj No:	NA	% Moisture:	100.0	Date Extracted:	NA
Method:	EPA 601	Dilution Factor:	1	Date Analyzed:	07-04-90
Matrix:	Water	Instrument ID:	3600	Analyst:	J.W.
Sampler:	NA			Date Reported:	07-23-90

Client Sample ID/Description: NA

CAS Number	Compound	Reporting Limit	Sample Result	Confirmation Result	Reporting Units
74-87-3	Chloromethane	1.0	U	NR	ug/L
74-83-9	Bromomethane	1.0	U	NR	ug/L
75-01-4	Vinyl chloride	1.0	U	NR	ug/L
75-00-3	Chloroethane	1.0	U	NR	ug/L
75-09-2	Dichloromethane	1.0	U	NR	ug/L
75-69-4	Trichlorofluoromethane	1.0	U	NR	ug/L
75-35-4	1,1-Dichloroethene	1.0	U	NR	ug/L
75-34-3	1,1-Dichloroethane	1.0	U	NR	ug/L
156-60-5	trans-1,2-Dichloroethene	1.0	U	NR	ug/L
67-66-3	Chloroform	1.0	U	NR	ug/L
107-06-2	1,2-Dichloroethane	1.0	U	NR	ug/L
71-55-6	1,1,1-Trichloroethane	1.0	U	NR	ug/L
56-23-5	Carbon tetrachloride	1.0	U	NR	ug/L
75-27-4	Bromodichloromethane	1.0	U	NR	ug/L
78-87-5	1,2-Dichloropropane	1.0	U	NR	ug/L
10061-01-5	cis-1,3-Dichloropropene	1.0	U	NR	ug/L
79-01-6	Trichloroethene	1.0	U	NR	ug/L
124-48-1	Dibromochloromethane	1.0	U	NR	ug/L
79-00-5	1,1,2-Trichloroethane	1.0	U	NR	ug/L
10061-02-6	trans-1,3-Dichloropropene	1.0	U	NR	ug/L
75-25-2	Bromoform	1.0	U	NR	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	NR	ug/L
127-18-4	Tetrachloroethene	1.0	U	NR	ug/L
108-90-7	Chlorobenzene	1.0	U	NR	ug/L
541-73-1	1,3-Dichlorobenzene	1.0	U	NR	ug/L
95-50-1	1,2-Dichlorobenzene	1.0	U	NR	ug/L
106-46-7	1,4-Dichlorobenzene	1.0	U	NR	ug/L
110-56-5	1,4-Dichlorobutane		99		% rec

U = Compound analyzed for but not detected.
SS = Surrogate Standard reported as percent recovery.
NR = Not Required. This sample was analyzed by a modified EPA 601 method.

Reviewed by: WLK

Report of Analytical Data - Purgeable Aromatics

Client: NA
Project: NA
Proj No: NA
Method: EPA 602
Matrix: Water
Sampler: NA

Laboratory: CH2M Hill/LRD
Lab Sample ID: Method Blank
% Moisture: 100.0
Dilution Factor: 1
Instrument ID: 3600

Date Sampled: NA
Date Received: NA
Date Extracted: NA
Date Analyzed: 07-04-90
Analyst: J W.
Date Reported: 07-23-90

Client Sample ID/Description: NA

CAS Number	Compound	Reporting Limit	Sample Result	Confirmation Result	Reporting Units
1634-04-4	tert-Butyl methyl ether	1.0	U	NR	ug/L
71-43-2	Benzene	1.0	U	NR	ug/L
108-88-3	Toluene	1.0	U	NR	ug/L
100-41-4	Ethylbenzene	1.0	U	NR	ug/L
1330-20-7	Total xylenes	1.0	U	NR	ug/L
98-08-8	a-Trifluorotoluene		101		% rec

U = Compound analyzed for but not detected.
SS = Surrogate Standard reported as percent recovery.
NR = Not Required. This sample was analyzed by a modified EPA 602 method.

Reviewed by: WLK

Report of Analytical Data - Purgeable Halocarbons

Client: NA
Project: NA
Proj No: NA
Method: EPA 601
Matrix: Water
Sampler: NA

Laboratory: CH2M Hill/LRD
Lab Sample ID: Method Blank
% Moisture: 100.0
Dilution Factor: 1
Instrument ID: 3700

Date Sampled: NA
Date Received: NA
Date Extracted: NA
Date Analyzed: 06-22-90
Analyst: J.W.
Date Reported: 07-05-90

Client Sample ID/Description: NA

CAS Number	Compound	Reporting Limit	Sample Result	Confirmation Result	Reporting Units
74-87-3	Chloromethane	1.0	U	NR	ug/L
74-83-9	Bromomethane	1.0	U	NR	ug/L
75-01-4	Vinyl chloride	1.0	U	NR	ug/L
75-00-3	Chloroethane	1.0	U	NR	ug/L
75-09-2	Dichloromethane	1.0	U	NR	ug/L
75-69-4	Trichlorofluoromethane	1.0	U	NR	ug/L
75-35-4	1,1-Dichloroethene	1.0	U	NR	ug/L
75-34-3	1,1-Dichloroethane	1.0	U	NR	ug/L
156-60-5	trans-1,2-Dichloroethene	1.0	U	NR	ug/L
67-66-3	Chloroform	1.0	U	NR	ug/L
107-06-2	1,2-Dichloroethane	1.0	U	NR	ug/L
71-55-6	1,1,1-Trichloroethane	1.0	U	NR	ug/L
56-23-5	Carbon tetrachloride	1.0	U	NR	ug/L
75-27-4	Bromodichloromethane	1.0	U	NR	ug/L
78-87-5	1,2-Dichloropropane	1.0	U	NR	ug/L
10061-01-5	cis-1,3-Dichloropropene	1.0	U	NR	ug/L
79-01-6	Trichloroethene	1.0	U	NR	ug/L
124-48-1	Dibromochloromethane	1.0	U	NR	ug/L
79-00-5	1,1,2-Trichloroethane	1.0	U	NR	ug/L
10061-02-6	trans-1,3-Dichloropropene	1.0	U	NR	ug/L
75-25-2	Bromoform	1.0	U	NR	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	NR	ug/L
127-18-4	Tetrachloroethene	1.0	U	NR	ug/L
108-90-7	Chlorobenzene	1.0	U	NR	ug/L
541-73-1	1,3-Dichlorobenzene	1.0	U	NR	ug/L
95-50-1	1,2-Dichlorobenzene	1.0	U	NR	ug/L
106-46-7	1,4-Dichlorobenzene	1.0	U	NR	ug/L
74-97-5	Bromochloromethane-SS		125		% rec

U = Compound analyzed for but not detected.
SS = Surrogate Standard reported as percent recovery.
NR = Not Required. This sample was analyzed by a modified EPA 601 method.

Reviewed by:

Report of Analytical Data - Purgeable Halocarbons

Client: NA
Project: NA
Proj No: NA
Method: EPA 601
Matrix: Water
Sampler: NA

Laboratory: CH2M Hill/LRD
Lab Sample ID: Method Blank
% Moisture: 100.0
Dilution Factor: 1
Instrument ID: 3700

Date Sampled: NA
Date Received: NA
Date Extracted: NA
Date Analyzed: 06-25-90
Analyst: J.W.
Date Reported: 07-05-90

Client Sample ID/Description: NA

CAS Number	Compound	Reporting Limit	Sample Result	Confirmation Result	Reporting Units
74-87-3	Chloromethane	1.0	U	NR	ug/L
74-83-9	Bromomethane	1.0	U	NR	ug/L
75-01-4	Vinyl chloride	1.0	U	NR	ug/L
75-00-3	Chloroethane	1.0	U	NR	ug/L
75-09-2	Dichloromethane	1.0	U	NR	ug/L
75-69-4	Trichlorofluoromethane	1.0	U	NR	ug/L
75-35-4	1,1-Dichloroethene	1.0	U	NR	ug/L
75-34-3	1,1-Dichloroethane	1.0	U	NR	ug/L
156-60-5	trans-1,2-Dichloroethene	1.0	U	NR	ug/L
67-66-3	Chloroform	1.0	U	NR	ug/L
107-06-2	1,2-Dichloroethane	1.0	U	NR	ug/L
71-55-6	1,1,1-Trichloroethane	1.0	U	NR	ug/L
56-23-5	Carbon tetrachloride	1.0	U	NR	ug/L
75-27-4	Bromodichloromethane	1.0	U	NR	ug/L
78-87-5	1,2-Dichloropropane	1.0	U	NR	ug/L
10061-01-5	cis-1,3-Dichloropropene	1.0	U	NR	ug/L
79-01-6	Trichloroethene	1.0	U	NR	ug/L
124-48-1	Dibromochloromethane	1.0	U	NR	ug/L
79-00-5	1,1,2-Trichloroethane	1.0	U	NR	ug/L
10061-02-6	trans-1,3-Dichloropropene	1.0	U	NR	ug/L
75-25-2	Bromoform	1.0	U	NR	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	NR	ug/L
127-18-4	Tetrachloroethene	1.0	U	NR	ug/L
108-90-7	Chlorobenzene	1.0	U	NR	ug/L
541-73-1	1,3-Dichlorobenzene	1.0	U	NR	ug/L
95-50-1	1,2-Dichlorobenzene	1.0	U	NR	ug/L
106-46-7	1,4-Dichlorobenzene	1.0	U	NR	ug/L
74-97-5	Bromochloromethane-SS		115		% rec

U = Compound analyzed for but not detected.
SS = Surrogate Standard reported as percent recovery.
NR = Not Required. This sample was analyzed by a modified EPA 601 method.

Reviewed by: Greg Jordan

Report of Analytical Data - Purgeable Aromatics

Client: NA
Project: NA
Proj No: NA
Method: EPA 602
Matrix: Water
Sampler: NA

Laboratory: CH2M Hill/LRD
Lab Sample ID: Method Blank
% Moisture: 100.0
Dilution Factor: 1
Instrument ID: Tracor

Date Sampled: NA
Date Received: NA
Date Extracted: NA
Date Analyzed: 06-21-90
Analyst: G.J.
Date Reported: 07-05-90

Client Sample ID/Description: NA

CAS Number	Compound	Reporting Limit	Sample Result	Confirmation Result	Reporting Units
108-90-7	Chlorobenzene	1.0	U	NR	ug/L
541-73-1	1,3-Dichlorobenzene	1.0	U	NR	ug/L
95-50-1	1,2-Dichlorobenzene	1.0	U	NR	ug/L
106-46-7	1,4-Dichlorobenzene	1.0	U	NR	ug/L
1634-04-4	tert-Butyl methyl ether	1.0	U	NR	ug/L
71-43-2	Benzene	1.0	U	NR	ug/L
108-88-3	Toluene	1.0	U	NR	ug/L
100-41-4	Ethylbenzene	1.0	U	NR	ug/L
1330-20-7	Total xylenes	1.0	U	NR	ug/L
	1,4-Chlorotoluene-SS		95		% rec

U = Compound analyzed for but not detected.
SS = Surrogate Standard reported as percent recovery.
NR = Not Required. This sample was analyzed by a modified EPA 602 method.

Reviewed by:

Report of Analytical Data - Purgeable Halocarbons

Client: NA
Project: NA
Proj No: NA
Method: EPA 601
Matrix: Water
Sampler: NA

Laboratory: CH2M Hill/LRD
Lab Sample ID: Method Blank
% Moisture: 100.0
Dilution Factor: 1
Instrument ID: 3700

Date Sampled: NA
Date Received: NA
Date Extracted: NA
Date Analyzed: 06-25-90
Analyst: J.W.
Date Reported: 07-05-90

Client Sample ID/Description: NA

CAS Number	Compound	Reporting Limit	Sample Result	Confirmation Result	Reporting Units
74-87-3	Chloromethane	1.0	U	NR	ug/L
74-83-9	Bromomethane	1.0	U	NR	ug/L
75-01-4	Vinyl chloride	1.0	U	NR	ug/L
75-00-3	Chloroethane	1.0	U	NR	ug/L
75-09-2	Dichloromethane	1.0	U	NR	ug/L
75-69-4	Trichlorofluoromethane	1.0	U	NR	ug/L
75-35-4	1,1-Dichloroethene	1.0	U	NR	ug/L
75-34-3	1,1-Dichloroethane	1.0	U	NR	ug/L
156-60-5	trans-1,2-Dichloroethene	1.0	U	NR	ug/L
67-66-3	Chloroform	1.0	U	NR	ug/L
107-06-2	1,2-Dichloroethane	1.0	U	NR	ug/L
71-55-6	1,1,1-Trichloroethane	1.0	U	NR	ug/L
56-23-5	Carbon tetrachloride	1.0	U	NR	ug/L
75-27-4	Bromodichloromethane	1.0	U	NR	ug/L
78-87-5	1,2-Dichloropropane	1.0	U	NR	ug/L
10061-01-5	cis-1,3-Dichloropropene	1.0	U	NR	ug/L
79-01-6	Trichloroethene	1.0	U	NR	ug/L
124-48-1	Dibromochloromethane	1.0	U	NR	ug/L
79-00-5	1,1,2-Trichloroethane	1.0	U	NR	ug/L
10061-02-6	trans-1,3-Dichloropropene	1.0	U	NR	ug/L
75-25-2	Bromoform	1.0	U	NR	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	NR	ug/L
127-18-4	Tetrachloroethene	1.0	U	NR	ug/L
108-90-7	Chlorobenzene	1.0	U	NR	ug/L
541-73-1	1,3-Dichlorobenzene	1.0	U	NR	ug/L
95-50-1	1,2-Dichlorobenzene	1.0	U	NR	ug/L
106-46-7	1,4-Dichlorobenzene	1.0	U	NR	ug/L
74-97-5	Bromochloromethane-SS		115		% rec

U = Compound analyzed for but not detected.
SS = Surrogate Standard reported as percent recovery.
NR = Not Required. This sample was analyzed by a modified EPA 601 method.

Reviewed by: Greg Fowler

Report of Analytical Data - Purgeable Aromatics

Client:	NA	Laboratory:	CH2M Hill/LRD	Date Sampled:	NA
Project:	NA	Lab Sample ID:	Method Blank	Date Received:	NA
Proj No:	NA	% Moisture:	100.0	Date Extracted:	NA
Method:	EPA 602	Dilution Factor:	1	Date Analyzed:	06-21-90
Matrix:	Water	Instrument ID:	Tracor	Analyst:	G.J.
Sampler:	NA			Date Reported:	07-05-90

Client Sample ID/Description: NA

CAS Number	Compound	Reporting Limit	Sample Result	Confirmation Result	Reporting Units
108-90-7	Chlorobenzene	1.0	U	NR	ug/L
541-73-1	1,3-Dichlorobenzene	1.0	U	NR	ug/L
95-50-1	1,2-Dichlorobenzene	1.0	U	NR	ug/L
106-46-7	1,4-Dichlorobenzene	1.0	U	NR	ug/L
1634-04-4	tert-Butyl methyl ether	1.0	U	NR	ug/L
71-43-2	Benzene	1.0	U	NR	ug/L
108-88-3	Toluene	1.0	U	NR	ug/L
100-41-4	Ethylbenzene	1.0	U	NR	ug/L
1330-20-7	Total xylenes	1.0	U	NR	ug/L
	1,4-Chlorotoluene-SS		95		% rec

U = Compound analyzed for but not detected.
SS = Surrogate Standard reported as percent recovery.
NR = Not Required. This sample was analyzed by a modified EPA 602 method.

Reviewed by: Greg Jordan

Report of Analytical Data - Purgeable Halocarbons

Client:	B.L.M.	Laboratory:	CH2M Hill/LRD	Date Sampled:	06-14-90
Project:	Stateline Dump	Lab Sample ID:	26816-4	Date Received:	06-15-90
Proj No:	RDD 28631.A0.30	% Moisture:	100.0	Date Extracted:	NA
Method:	EPA 601	Dilution Factor:	1	Date Analyzed:	06-25-90
Matrix:	Water	Instrument ID:	3700	Analyst:	J.W.
Sampler:	Client			Date Reported:	07-05-90

Client Sample ID/Description: OS-12

CAS Number	Compound	Reporting Limit	Sample Result	Confirmation Result	Reporting Units
74-87-3	Chloromethane	1.0	U	NR	ug/L
74-83-9	Bromomethane	1.0	U	NR	ug/L
75-01-4	Vinyl chloride	1.0	U	NR	ug/L
75-00-3	Chloroethane	1.0	U	NR	ug/L
75-09-2	Dichloromethane	1.0	U	NR	ug/L
75-69-4	Trichlorofluoromethane	1.0	U	NR	ug/L
75-35-4	1,1-Dichloroethene	1.0	U	NR	ug/L
75-34-3	1,1-Dichloroethane	1.0	U	NR	ug/L
156-60-5	trans-1,2-Dichloroethene	1.0	U	NR	ug/L
67-66-3	Chloroform	1.0	U	NR	ug/L
107-06-2	1,2-Dichloroethane	1.0	U	NR	ug/L
71-55-6	1,1,1-Trichloroethane	1.0	U	NR	ug/L
56-23-5	Carbon tetrachloride	1.0	U	NR	ug/L
75-27-4	Bromodichloromethane	1.0	U	NR	ug/L
78-87-5	1,2-Dichloropropane	1.0	U	NR	ug/L
10061-01-5	cis-1,3-Dichloropropene	1.0	U	NR	ug/L
79-01-6	Trichloroethene	1.0	U	NR	ug/L
124-48-1	Dibromochloromethane	1.0	U	NR	ug/L
79-00-5	1,1,2-Trichloroethane	1.0	U	NR	ug/L
10061-02-6	trans-1,3-Dichloropropene	1.0	U	NR	ug/L
75-25-2	Bromoform	1.0	U	NR	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	NR	ug/L
127-18-4	Tetrachloroethene	1.0	U	NR	ug/L
108-90-7	Chlorobenzene	1.0	U	NR	ug/L
541-73-1	1,3-Dichlorobenzene	1.0	U	NR	ug/L
95-50-1	1,2-Dichlorobenzene	1.0	U	NR	ug/L
106-46-7	1,4-Dichlorobenzene	1.0	U	NR	ug/L
74-97-5	Bromochloromethane-SS		112		% rec

U = Compound analyzed for but not detected.
SS = Surrogate Standard reported as percent recovery.
NR = Not Required. This sample was analyzed by a modified EPA 601 method.

Reviewed by: Greg Jordan

Report of Analytical Data - Purgeable Aromatics

Client:	B.L.M.	Laboratory:	CH2M Hill/LRD	Date Sampled:	06-14-90
Project:	Stateline Dump	Lab Sample ID:	26816-4	Date Received:	06-15-90
Proj No:	RDD 28631.A0.30	% Moisture:	100.0	Date Extracted:	NA
Method:	EPA 602	Dilution Factor:	1	Date Analyzed:	06-22-90
Matrix:	Water	Instrument ID:	Tracor	Analyst:	G.J.
Sampler:	Client			Date Reported:	07-05-90

Client Sample ID/Description: OS-12

CAS Number	Compound	Reporting Limit	Sample Result	Confirmation Result	Reporting Units
108-90-7	Chlorobenzene	1.0	U	NR	ug/L
541-73-1	1,3-Dichlorobenzene	1.0	U	NR	ug/L
95-50-1	1,2-Dichlorobenzene	1.0	U	NR	ug/L
106-46-7	1,4-Dichlorobenzene	1.0	U	NR	ug/L
1634-04-4	tert-Butyl methyl ether	1.0	U	NR	ug/L
71-43-2	Benzene	1.0	U	NR	ug/L
108-88-3	Toluene	1.0	U	NR	ug/L
100-41-4	Ethylbenzene	1.0	U	NR	ug/L
1330-20-7	Total xylenes	1.0	U	NR	ug/L
	1,4-Chlorotoluene-SS		96		% rec

U = Compound analyzed for but not detected.
SS = Surrogate Standard reported as percent recovery.
NR = Not Required. This sample was analyzed by a modified EPA 602 method.

Reviewed by: Greg Jordan

Report of Analytical Data - Purgeable Halocarbons

Client: B.L.M.
Project: Stateline Dump
Proj No: RDD 28361.A0.30
Method: EPA 601
Matrix: Water
Sampler: Client

Laboratory: CH2M Hill/LRD
Lab Sample ID: 26788-1
% Moisture: 100.0
Dilution Factor: 1
Instrument ID: 3700

Date Sampled: 06-12-90
Date Received: 06-14-90
Date Extracted: NA
Date Analyzed: 06-25-90
Analyst: J.W.
Date Reported: 07-05-90

Client Sample ID/Description: OS25

CAS Number	Compound	Reporting Limit	Sample Result	Confirmation Result	Reporting Units
74-87-3	Chloromethane	1.0	U	NR	ug/L
74-83-9	Bromomethane	1.0	U	NR	ug/L
75-01-4	Vinyl chloride	1.0	U	NR	ug/L
75-00-3	Chloroethane	1.0	U	NR	ug/L
75-09-2	Dichloromethane	1.0	U	NR	ug/L
75-69-4	Trichlorofluoromethane	1.0	U	NR	ug/L
75-35-4	1,1-Dichloroethene	1.0	U	NR	ug/L
75-34-3	1,1-Dichloroethane	1.0	U	NR	ug/L
156-60-5	trans-1,2-Dichloroethene	1.0	U	NR	ug/L
67-66-3	Chloroform	1.0	U	NR	ug/L
107-06-2	1,2-Dichloroethane	1.0	U	NR	ug/L
71-55-6	1,1,1-Trichloroethane	1.0	U	NR	ug/L
56-23-5	Carbon tetrachloride	1.0	U	NR	ug/L
75-27-4	Bromodichloromethane	1.0	U	NR	ug/L
78-87-5	1,2-Dichloropropane	1.0	U	NR	ug/L
10061-01-5	cis-1,3-Dichloropropene	1.0	U	NR	ug/L
79-01-6	Trichloroethene	1.0	U	NR	ug/L
124-48-1	Dibromochloromethane	1.0	U	NR	ug/L
79-00-5	1,1,2-Trichloroethane	1.0	U	NR	ug/L
10061-02-6	trans-1,3-Dichloropropene	1.0	U	NR	ug/L
75-25-2	Bromoform	1.0	U	NR	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	NR	ug/L
127-18-4	Tetrachloroethene	1.0	U	NR	ug/L
108-90-7	Chlorobenzene	1.0	U	NR	ug/L
541-73-1	1,3-Dichlorobenzene	1.0	U	NR	ug/L
95-50-1	1,2-Dichlorobenzene	1.0	U	NR	ug/L
106-46-7	1,4-Dichlorobenzene	1.0	U	NR	ug/L
74-97-5	Bromochloromethane-SS		84		% rec

U = Compound analyzed for but not detected.
SS = Surrogate Standard reported as percent recovery.
NR = Not Required. This sample was analyzed by a modified EPA 601 method.

Reviewed by: Greg Jordan

Report of Analytical Data - Purgeable Aromatics

Client:	B.L.M.	Laboratory:	CH2M Hill/LRD	Date Sampled:	06-12-90
Project:	Stateline Dump	Lab Sample ID:	26788-1	Date Received:	06-14-90
Proj No:	RDD 28361.A0.30	% Moisture:	100.0	Date Extracted:	NA
Method:	EPA 602	Dilution Factor:	1	Date Analyzed:	06-21-90
Matrix:	Water	Instrument ID:	Tracor	Analyst:	G.J.
Sampler:	Client			Date Reported:	07-05-90

Client Sample ID/Description: OS25

CAS Number	Compound	Reporting Limit	Sample Result	Confirmation Result	Reporting Units
108-90-7	Chlorobenzene	1.0	U	NR	ug/L
541-73-1	1,3-Dichlorobenzene	1.0	U	NR	ug/L
95-50-1	1,2-Dichlorobenzene	1.0	U	NR	ug/L
106-46-7	1,4-Dichlorobenzene	1.0	U	NR	ug/L
1634-04-4	tert-Butyl methyl ether	1.0	U	NR	ug/L
71-43-2	Benzene	1.0	U	NR	ug/L
108-88-3	Toluene	1.0	U	NR	ug/L
100-41-4	Ethylbenzene	1.0	U	NR	ug/L
1330-20-7	Total xylenes	1.0	U	NR	ug/L
	1,4-Chlorotoluene-SS		98		% rec

U = Compound analyzed for but not detected.
SS = Surrogate Standard reported as percent recovery.
NR = Not Required. This sample was analyzed by a modified EPA 602 method.

Reviewed by: Greg Jordan

Report of Analytical Data - Purgeable Halocarbons

Client:	B.L.M.	Laboratory:	CH2M Hill/LRD	Date Sampled:	06-12-90
Project:	Stateline Dump	Lab Sample ID:	26788-2	Date Received:	06-14-90
Proj No:	RDD 28361.A0.30	% Moisture:	100.0	Date Extracted:	NA
Method:	EPA 601	Dilution Factor:	1	Date Analyzed:	06-22-90
Matrix:	Water	Instrument ID:	3700	Analyst:	J.W.
Sampler:	Client			Date Reported:	07-05-90

Client Sample ID/Description: OS125

CAS Number	Compound	Reporting Limit	Sample Result	Confirmation Result	Reporting Units
74-87-3	Chloromethane	1.0	U	NR	ug/L
74-83-9	Bromomethane	1.0	U	NR	ug/L
75-01-4	Vinyl chloride	1.0	U	NR	ug/L
75-00-3	Chloroethane	1.0	U	NR	ug/L
75-09-2	Dichloromethane	1.0	U	NR	ug/L
75-69-4	Trichlorofluoromethane	1.0	U	NR	ug/L
75-35-4	1,1-Dichloroethene	1.0	U	NR	ug/L
75-34-3	1,1-Dichloroethane	1.0	U	NR	ug/L
156-60-5	trans-1,2-Dichloroethene	1.0	U	NR	ug/L
67-66-3	Chloroform	1.0	U	NR	ug/L
107-06-2	1,2-Dichloroethane	1.0	U	NR	ug/L
71-55-6	1,1,1-Trichloroethane	1.0	U	NR	ug/L
56-23-5	Carbon tetrachloride	1.0	U	NR	ug/L
75-27-4	Bromodichloromethane	1.0	U	NR	ug/L
78-87-5	1,2-Dichloropropane	1.0	U	NR	ug/L
10061-01-5	cis-1,3-Dichloropropene	1.0	U	NR	ug/L
79-01-6	Trichloroethene	1.0	U	NR	ug/L
124-48-1	Dibromochloromethane	1.0	U	NR	ug/L
79-00-5	1,1,2-Trichloroethane	1.0	U	NR	ug/L
10061-02-6	trans-1,3-Dichloropropene	1.0	U	NR	ug/L
75-25-2	Bromoform	1.0	U	NR	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	NR	ug/L
127-18-4	Tetrachloroethene	1.0	U	NR	ug/L
108-90-7	Chlorobenzene	1.0	U	NR	ug/L
541-73-1	1,3-Dichlorobenzene	1.0	U	NR	ug/L
95-50-1	1,2-Dichlorobenzene	1.0	U	NR	ug/L
106-46-7	1,4-Dichlorobenzene	1.0	U	NR	ug/L
74-97-5	Bromochloromethane-SS		122		% rec

U = Compound analyzed for but not detected.
SS = Surrogate Standard reported as percent recovery.
NR = Not Required. This sample was analyzed by a modified EPA 601 method.

Reviewed by: ______________________

Report of Analytical Data - Purgeable Aromatics

Client:	B.L.M.	Laboratory:	CH2M Hill/LRD	Date Sampled:	06-12-90
Project:	Stateline Dump	Lab Sample ID:	26788-2	Date Received:	06-14-90
Proj No:	RDD 28361.A0.30	% Moisture:	100.0	Date Extracted:	NA
Method:	EPA 602	Dilution Factor:	1	Date Analyzed:	06-22-90
Matrix:	Water	Instrument ID:	Tracor	Analyst:	G.J.
Sampler:	Client			Date Reported:	07-05-90

Client Sample ID/Description: OS125

CAS Number	Compound	Reporting Limit	Sample Result	Confirmation Result	Reporting Units
108-90-7	Chlorobenzene	1.0	U	NR	ug/L
541-73-1	1,3-Dichlorobenzene	1.0	U	NR	ug/L
95-50-1	1,2-Dichlorobenzene	1.0	U	NR	ug/L
106-46-7	1,4-Dichlorobenzene	1.0	U	NR	ug/L
1634-04-4	tert-Butyl methyl ether	1.0	U	NR	ug/L
71-43-2	Benzene	1.0	U	NR	ug/L
108-88-3	Toluene	1.0	U	NR	ug/L
100-41-4	Ethylbenzene	1.0	U	NR	ug/L
1330-20-7	Total xylenes	1.0	U	NR	ug/L
	1,4-Chlorotoluene-SS		89		% rec

U = Compound analyzed for but not detected.
SS = Surrogate Standard reported as percent recovery.
NR = Not Required. This sample was analyzed by a modified EPA 602 method.

Reviewed by: Greg Jordan

Report of Analytical Data - Purgeable Halocarbons

Client: B.L.M.
Project: Stateline Dump
Proj No: RDD 28361.A0.30
Method: EPA 601
Matrix: Water
Sampler: Client

Laboratory: CH2M Hill/LRD
Lab Sample ID: 26788-4
% Moisture: 100.0
Dilution Factor: 1
Instrument ID: 3700

Date Sampled: 06-12-90
Date Received: 06-14-90
Date Extracted: NA
Date Analyzed: 06-23-90
Analyst: J.W.
Date Reported: 07-05-90

Client Sample ID/Description: OS27

CAS Number	Compound	Reporting Limit	Sample Result	Confirmation Result	Reporting Units
74-87-3	Chloromethane	1.0	U	NR	ug/L
74-83-9	Bromomethane	1.0	U	NR	ug/L
75-01-4	Vinyl chloride	1.0	U	NR	ug/L
75-00-3	Chloroethane	1.0	U	NR	ug/L
75-09-2	Dichloromethane	1.0	U	NR	ug/L
75-69-4	Trichlorofluoromethane	1.0	U	NR	ug/L
75-35-4	1,1-Dichloroethene	1.0	U	NR	ug/L
75-34-3	1,1-Dichloroethane	1.0	U	NR	ug/L
156-60-5	trans-1,2-Dichloroethene	1.0	U	NR	ug/L
67-66-3	Chloroform	1.0	U	NR	ug/L
107-06-2	1,2-Dichloroethane	1.0	U	NR	ug/L
71-55-6	1,1,1-Trichloroethane	1.0	U	NR	ug/L
56-23-5	Carbon tetrachloride	1.0	U	NR	ug/L
75-27-4	Bromodichloromethane	1.0	U	NR	ug/L
78-87-5	1,2-Dichloropropane	1.0	U	NR	ug/L
10061-01-5	cis-1,3-Dichloropropene	1.0	U	NR	ug/L
79-01-6	Trichloroethene	1.0	U	NR	ug/L
124-48-1	Dibromochloromethane	1.0	U	NR	ug/L
79-00-5	1,1,2-Trichloroethane	1.0	U	NR	ug/L
10061-02-6	trans-1,3-Dichloropropene	1.0	U	NR	ug/L
75-25-2	Bromoform	1.0	U	NR	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	NR	ug/L
127-18-4	Tetrachloroethene	1.0	U	NR	ug/L
108-90-7	Chlorobenzene	1.0	U	NR	ug/L
541-73-1	1,3-Dichlorobenzene	1.0	U	NR	ug/L
95-50-1	1,2-Dichlorobenzene	1.0	U	NR	ug/L
106-46-7	1,4-Dichlorobenzene	1.0	U	NR	ug/L
74-97-5	Bromochloromethane-SS		102		% rec

U = Compound analyzed for but not detected.
SS = Surrogate Standard reported as percent recovery.
NR = Not Required. This sample was analyzed by a modified EPA 601 method.

Reviewed by: Greg Jordan

Report of Analytical Data - Purgeable Aromatics

Client: B.L.M.
Project: Stateline Dump
Proj No: RDD 28361.A0.30
Method: EPA 602
Matrix: Water
Sampler: Client

Laboratory: CH2M Hill/LRD
Lab Sample ID: 26788-4
% Moisture: 100.0
Dilution Factor: 1
Instrument ID: Tracor

Date Sampled: 06-12-90
Date Received: 06-14-90
Date Extracted: NA
Date Analyzed: 06-22-90
Analyst: G.J.
Date Reported: 07-05-90

Client Sample ID/Description: OS27

CAS Number	Compound	Reporting Limit	Sample Result	Confirmation Result	Reporting Units
108-90-7	Chlorobenzene	1.0	U	NR	ug/L
541-73-1	1,3-Dichlorobenzene	1.0	U	NR	ug/L
95-50-1	1,2-Dichlorobenzene	1.0	U	NR	ug/L
106-46-7	1,4-Dichlorobenzene	1.0	U	NR	ug/L
1634-04-4	tert-Butyl methyl ether	1.0	U	NR	ug/L
71-43-2	Benzene	1.0	U	NR	ug/L
108-88-3	Toluene	1.0	U	NR	ug/L
100-41-4	Ethylbenzene	1.0	U	NR	ug/L
1330-20-7	Total xylenes	1.0	U	NR	ug/L
	1,4-Chlorotoluene-SS		95		% rec

U = Compound analyzed for but not detected.
SS = Surrogate Standard reported as percent recovery.
NR = Not Required. This sample was analyzed by a modified EPA 602 method.

Reviewed by: Greg Jordan

CH2M HILL
Engineers
Planners
Economists
Scientists

Report of Analytical Data - Purgeable Halocarbons

Client:	BLM	Laboratory:	CH2M Hill/LRD	Date Sampled:	06-20-90
Project:	Stateline Dump	Lab Sample ID:	26846-1	Date Received:	06-21-90
Proj No:	RDD28631,A0,3	% Moisture:	100.0	Date Extracted:	NA
Method:	EPA 601	Dilution Factor:	1	Date Analyzed:	07-04-90
Matrix:	Water	Instrument ID:	3600	Analyst:	J.W.
Sampler:	Client			Date Reported:	07-23-90

Client Sample ID/Description: OS-28 GRNDWTR

CAS Number	Compound	Reporting Limit	Sample Result	Confirmation Result	Reporting Units
74-87-3	Chloromethane	1.0	U	NR	ug/L
74-83-9	Bromomethane	1.0	U	NR	ug/L
75-01-4	Vinyl chloride	1.0	U	NR	ug/L
75-00-3	Chloroethane	1.0	U	NR	ug/L
75-09-2	Dichloromethane	1.0	U	NR	ug/L
75-69-4	Trichlorofluoromethane	1.0	U	NR	ug/L
75-35-4	1,1-Dichloroethene	1.0	U	NR	ug/L
75-34-3	1,1-Dichloroethane	1.0	U	NR	ug/L
156-60-5	trans-1,2-Dichloroethene	1.0	U	NR	ug/L
67-66-3	Chloroform	1.0	U	NR	ug/L
107-06-2	1,2-Dichloroethane	1.0	U	NR	ug/L
71-55-6	1,1,1-Trichloroethane	1.0	U	NR	ug/L
56-23-5	Carbon tetrachloride	1.0	U	NR	ug/L
75-27-4	Bromodichloromethane	1.0	U	NR	ug/L
78-87-5	1,2-Dichloropropane	1.0	U	NR	ug/L
10061-01-5	cis-1,3-Dichloropropene	1.0	U	NR	ug/L
79-01-6	Trichloroethene	1.0	U	NR	ug/L
124-48-1	Dibromochloromethane	1.0	U	NR	ug/L
79-00-5	1,1,2-Trichloroethane	1.0	U	NR	ug/L
10061-02-6	trans-1,3-Dichloropropene	1.0	U	NR	ug/L
75-25-2	Bromoform	1.0	U	NR	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	NR	ug/L
127-18-4	Tetrachloroethene	1.0	U	NR	ug/L
108-90-7	Chlorobenzene	1.0	U	NR	ug/L
541-73-1	1,3-Dichlorobenzene	1.0	U	NR	ug/L
95-50-1	1,2-Dichlorobenzene	1.0	U	NR	ug/L
106-46-7	1,4-Dichlorobenzene	1.0	U	NR	ug/L
110-56-5	1,4-Dichlorobutane		109		% rec

U = Compound analyzed for but not detected.
SS = Surrogate Standard reported as percent recovery.
NR = Not Required. This sample was analyzed by a modified EPA 601 method.

Reviewed by: WLR

Report of Analytical Data - Purgeable Aromatics

Client: BLM
Project: Stateline Dump
Proj No: RDD28631,A0,3
Method: EPA 602
Matrix: Water
Sampler: Client

Laboratory: CH2M Hill/LRD
Lab Sample ID: 26846-1
% Moisture: 100.0
Dilution Factor: 1
Instrument ID: 3600

Date Sampled: 06-20-90
Date Received: 06-21-90
Date Extracted: NA
Date Analyzed: 07-04-90
Analyst: J.W.
Date Reported: 07-23-90

Client Sample ID/Description: OS-28 GRNDWTR

CAS Number	Compound	Reporting Limit	Sample Result	Confirmation Result	Reporting Units
1634-04-4	tert-Butyl methyl ether	1.0	U	NR	ug/L
71-43-2	Benzene	1.0	U	NR	ug/L
108-88-3	Toluene	1.0	U	NR	ug/L
100-41-4	Ethylbenzene	1.0	U	NR	ug/L
1330-20-7	Total xylenes	1.0	U	NR	ug/L
98-08-8	a-Trifluorotoluene		102		% rec

U = Compound analyzed for but not detected.
SS = Surrogate Standard reported as percent recovery.
NR = Not Required. This sample was analyzed by a modified EPA 602 method.

Reviewed by: WLK

Report of Analytical Data - Purgeable Halocarbons

Client: B.L.M.
Project: Stateline Dump
Proj No: RDD 28361.A0.30
Method: EPA 601
Matrix: Water
Sampler: Client

Laboratory: CH2M Hill/LRD
Lab Sample ID: 26788-3
% Moisture: 100.0
Dilution Factor: 1
Instrument ID: 3700

Date Sampled: 06-11-90
Date Received: 06-14-90
Date Extracted: NA
Date Analyzed: 06-23-90
Analyst: J.W.
Date Reported: 07-05-90

Client Sample ID/Description: OS31

CAS Number	Compound	Reporting Limit	Sample Result	Confirmation Result	Reporting Units
74-87-3	Chloromethane	1.0	U	NR	ug/L
74-83-9	Bromomethane	1.0	U	NR	ug/L
75-01-4	Vinyl chloride	1.0	U	NR	ug/L
75-00-3	Chloroethane	1.0	U	NR	ug/L
75-09-2	Dichloromethane	1.0	U	NR	ug/L
75-69-4	Trichlorofluoromethane	1.0	U	NR	ug/L
75-35-4	1,1-Dichloroethene	1.0	U	NR	ug/L
75-34-3	1,1-Dichloroethane	1.0	U	NR	ug/L
156-60-5	trans-1,2-Dichloroethene	1.0	U	NR	ug/L
67-66-3	Chloroform	1.0	U	NR	ug/L
107-06-2	1,2-Dichloroethane	1.0	U	NR	ug/L
71-55-6	1,1,1-Trichloroethane	1.0	U	NR	ug/L
56-23-5	Carbon tetrachloride	1.0	U	NR	ug/L
75-27-4	Bromodichloromethane	1.0	U	NR	ug/L
78-87-5	1,2-Dichloropropane	1.0	U	NR	ug/L
10061-01-5	cis-1,3-Dichloropropene	1.0	U	NR	ug/L
79-01-6	Trichloroethene	1.0	U	NR	ug/L
124-48-1	Dibromochloromethane	1.0	U	NR	ug/L
79-00-5	1,1,2-Trichloroethane	1.0	U	NR	ug/L
10061-02-6	trans-1,3-Dichloropropene	1.0	U	NR	ug/L
75-25-2	Bromoform	1.0	U	NR	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	NR	ug/L
127-18-4	Tetrachloroethene	1.0	U	NR	ug/L
108-90-7	Chlorobenzene	1.0	U	NR	ug/L
541-73-1	1,3-Dichlorobenzene	1.0	U	NR	ug/L
95-50-1	1,2-Dichlorobenzene	1.0	U	NR	ug/L
106-46-7	1,4-Dichlorobenzene	1.0	U	NR	ug/L
74-97-5	Bromochloromethane-SS		122		% rec

U = Compound analyzed for but not detected.
SS = Surrogate Standard reported as percent recovery.
NR = Not Required. This sample was analyzed by a modified EPA 601 method.

Reviewed by: Gay Jordan

Report of Analytical Data - Purgeable Aromatics

Client:	B.L.M.	Laboratory:	CH2M Hill/LRD	Date Sampled:	06-11-90
Project:	Stateline Dump	Lab Sample ID:	26788-3	Date Received:	06-14-90
Proj No:	RDD 28361.A0.30	% Moisture:	100.0	Date Extracted:	NA
Method:	EPA 602	Dilution Factor:	1	Date Analyzed:	06-22-90
Matrix:	Water	Instrument ID:	Tracor	Analyst:	G.J.
Sampler:	Client			Date Reported:	07-05-90

Client Sample ID/Description: OS31

CAS Number	Compound	Reporting Limit	Sample Result	Confirmation Result	Reporting Units
108-90-7	Chlorobenzene	1.0	U	NR	ug/L
541-73-1	1,3-Dichlorobenzene	1.0	U	NR	ug/L
95-50-1	1,2-Dichlorobenzene	1.0	U	NR	ug/L
106-46-7	1,4-Dichlorobenzene	1.0	U	NR	ug/L
1634-04-4	tert-Butyl methyl ether	1.0	U	NR	ug/L
71-43-2	Benzene	1.0	U	NR	ug/L
108-88-3	Toluene	1.0	U	NR	ug/L
100-41-4	Ethylbenzene	1.0	U	NR	ug/L
1330-20-7	Total xylenes	1.0	U	NR	ug/L
	1,4-Chlorotoluene-SS		92		% rec

U = Compound analyzed for but not detected.
SS = Surrogate Standard reported as percent recovery.
NR = Not Required. This sample was analyzed by a modified EPA 602 method.

Reviewed by: Greg Jordan

Report of Analytical Data - Purgeable Halocarbons

Client: B.L.M.
Project: Stateline Dump
Proj No: RDD 28631.A0.30
Method: EPA 601
Matrix: Water
Sampler: Client

Laboratory: CH2M Hill/LRD
Lab Sample ID: 26816-6
% Moisture: 100.0
Dilution Factor: 1
Instrument ID: 3700

Date Sampled: 06-14-90
Date Received: 06-15-90
Date Extracted: NA
Date Analyzed: 06-25-90
Analyst: J.W.
Date Reported: 07-05-90

Client Sample ID/Description: OS-99

CAS Number	Compound	Reporting Limit	Sample Result	Confirmation Result	Reporting Units
74-87-3	Chloromethane	1.0	U	NR	ug/L
74-83-9	Bromomethane	1.0	U	NR	ug/L
75-01-4	Vinyl chloride	1.0	U	NR	ug/L
75-00-3	Chloroethane	1.0	U	NR	ug/L
75-09-2	Dichloromethane	1.0	U	NR	ug/L
75-69-4	Trichlorofluoromethane	1.0	U	NR	ug/L
75-35-4	1,1-Dichloroethene	1.0	U	NR	ug/L
75-34-3	1,1-Dichloroethane	1.0	U	NR	ug/L
156-60-5	trans-1,2-Dichloroethene	1.0	U	NR	ug/L
67-66-3	Chloroform	1.0	U	NR	ug/L
107-06-2	1,2-Dichloroethane	1.0	U	NR	ug/L
71-55-6	1,1,1-Trichloroethane	1.0	U	NR	ug/L
56-23-5	Carbon tetrachloride	1.0	U	NR	ug/L
75-27-4	Bromodichloromethane	1.0	U	NR	ug/L
78-87-5	1,2-Dichloropropane	1.0	U	NR	ug/L
10061-01-5	cis-1,3-Dichloropropene	1.0	U	NR	ug/L
79-01-6	Trichloroethene	1.0	U	NR	ug/L
124-48-1	Dibromochloromethane	1.0	U	NR	ug/L
79-00-5	1,1,2-Trichloroethane	1.0	U	NR	ug/L
10061-02-6	trans-1,3-Dichloropropene	1.0	U	NR	ug/L
75-25-2	Bromoform	1.0	U	NR	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	NR	ug/L
127-18-4	Tetrachloroethene	1.0	U	NR	ug/L
108-90-7	Chlorobenzene	1.0	U	NR	ug/L
541-73-1	1,3-Dichlorobenzene	1.0	U	NR	ug/L
95-50-1	1,2-Dichlorobenzene	1.0	U	NR	ug/L
106-46-7	1,4-Dichlorobenzene	1.0	U	NR	ug/L
74-97-5	Bromochloromethane-SS		115		% rec

U = Compound analyzed for but not detected.
SS = Surrogate Standard reported as percent recovery.
NR = Not Required. This sample was analyzed by a modified EPA 601 method.

Reviewed by: Greg Jordan

Report of Analytical Data - Purgeable Aromatics

Client:	B.L.M.	Laboratory:	CH2M Hill/LRD	Date Sampled:	06-14-90
Project:	Stateline Dump	Lab Sample ID:	26816-6	Date Received:	06-15-90
Proj No:	RDD 28631.A0.30	% Moisture:	100.0	Date Extracted:	NA
Method:	EPA 602	Dilution Factor:	1	Date Analyzed:	06-22-90
Matrix:	Water	Instrument ID:	Tracor	Analyst:	G.J.
Sampler:	Client			Date Reported:	07-05-90

Client Sample ID/Description: OS-99

CAS Number	Compound	Reporting Limit	Sample Result	Confirmation Result	Reporting Units
108-90-7	Chlorobenzene	1.0	U	NR	ug/L
541-73-1	1,3-Dichlorobenzene	1.0	U	NR	ug/L
95-50-1	1,2-Dichlorobenzene	1.0	U	NR	ug/L
106-46-7	1,4-Dichlorobenzene	1.0	U	NR	ug/L
1634-04-4	tert-Butyl methyl ether	1.0	U	NR	ug/L
71-43-2	Benzene	1.0	U	NR	ug/L
108-88-3	Toluene	1.0	U	NR	ug/L
100-41-4	Ethylbenzene	1.0	U	NR	ug/L
1330-20-7	Total xylenes	1.0	U	NR	ug/L
	1,4-Chlorotoluene-SS		96		% rec

U = Compound analyzed for but not detected.
SS = Surrogate Standard reported as percent recovery.
NR = Not Required. This sample was analyzed by a modified EPA 602 method.

Reviewed by: Greg Jordan

ANALYTICAL METHODOLOGY

Organic Analysis

Priority Pollutants: Water, soil and waste samples are analyzed in accordance with procedures described in Methods 608, 624, and 625, EPA-600/4-82-057 (1982); Methods 8080, 8240, and 8270, Test Methods for Evaluating Solid Waste, 1986, SW-846, Third Edition; and methods outlined in the USEPA Contract Laboratory Program Statement of Work for Organics Analysis, February, 1988.

Volatile Analysis (Safe Drinking Water Act): Water samples are analyzed in accordance with procedures described in Method 524.2, Federal Register (50 FR 46902), November 13, 1985.

Chlorinated Phenoxyacid Herbicides: Samples are analyzed with procedures described in Method 8150, Test Methods for Evaluating Solid Waste, 1986, SW-846, Third Edition.

Organophosphate Pesticides: Samples are analyzed in accordance with procedures described in Methods 614 and 622, EPA-600/4-79-019 (1979) and in Method 8140, Test Methods for Evaluating Solid Waste, 1986, SW-846, Third Edition.

Phenol Analysis by GC: Samples are analyzed in accordance with procedures outlined in Method 604, Federal Register, 40 CFR, Part 136 (July 1, 1987) and in Method 8040, Test Methods for Evaluating Solid Waste, 1986, SW-846, Third Edition.

Polynuclear Aromatic Hydrocarbons (GC analysis): Samples are analyzed with procedures described in Method 610, Federal Register, 40 CFR, Part 136 (July 1, 1987) and in Method 8100, Test Methods for Evaluating Solid Waste, 1986, SW-846, Third Edition.

Ethylene Dibromide : Water samples are analyzed in accordance with procedures outlined in Method 504, Federal Register (50 FR 46902), November 13, 1985.

Trihalomethanes: Water samples are analyzed with procedures described in Method 501.2, Federal Register, Vol. 44, No. 231, Part II, November 29, 1979.

EPA - DEFINED QUALIFIERS

ORGANICS

Definitions for the EPA-defined qualifiers:

U -- Indicates the compound was analyzed for but not detected. The number adjacent to the "U" qualifier indicates the quantitation limit for that compound. The detection limit can vary from sample to sample depending on dilution factors or percent moisture adjustment when indicated.

J -- Indicates an estimated value. This flag is used when the mass spectral data indicates the presence of a compound below the stated PQL. The "J" qualifier is not used with pesticide results.

C -- This flag applies to pesticide results only. The "C" flag indicates the presence of this compound has been confirmed by GC/MS analysis.

B -- This flag is used when the analyte is found in the associated blank as well as the sample. This notation indicates possible blank contamination and suggests the data user evaluate these compounds and their amounts carefully.

E -- This flag applies to GC/MS only. The "E" qualifier indicates a compound may be above or below the linear range of the instrument. If the particular compound level is deemed above the linear calibration range, then the sample should be reanalyzed at an appropriate dilution. Therefore, the "E" qualified amount is an estimated concentration. The results for the dilution will be reported on a separate Form I and will be flagged with a "D" if the dilution brings the concentration within proper calibration.

D -- This flag identifies compounds which have been run at a dilution to bring the concentration of that compound within the linear range of the instrument. "D" qualifiers are only used for samples that have been run initially with results above acceptable ranges. For secondary dilutions the "DL" suffix is appended to the sample number on the Form I.

A -- Indicates the Tentatively Identified Compound (TIC) is a suspected aldol-condensation product.

X -- Indicates the compound concentration has been manually modified or the EPA qualifier has been manually modified or added.

JX -- This value is less than the sample quantitation limit that would have been displayed for "U".

CLIENT SAMPLE ID QUALIFIERS

LEVEL 1

The qualifiers that GC/MS uses with the client sample ID are defined below:

DL -- Dilution Run

R -- Rerun (may be followed by a digit to indicate multiple reruns)

RD -- Diluted Rerun

RX -- Re-extraction Analysis

MS -- Matrix Spike (may be followed by a digit to indicate multiple matrix spikes within a sample set)

MSD -- Matrix Spike Duplicate (may be followed by a digit to indicate multiple matrix spike duplicates within a sample set)

QC_BLANK -- Method Blank (may be followed by an **S** for soils run at a low level, **W** for waters, or **SM** for soils run at a medium level) (letters may be followed by a digit to indicate multiple blanks of that type; if there are no letters the digit indicates multiple blanks).

These qualifiers allow GC/MS to have unique client sample ID's so that the client can get more accurate information from the data reported.

TABLE 1

SAMPLE CROSS-REFERENCE SUMMARY

CH2M HILL Laboratory No. 16176

LMG Sample No.	LRD Sample No.	Sample Description			
16176001	26811001	SAMPLE MW-4	06/13/90	1650	GRAB
16176002	26811002	SAMPLE MW-1	06/13/90	1710	GRAB
16176003	26811003	SAMPLE S-6	06/13/90	1100	SOIL
16176004	26816001	SAMPLE MW-2	06/15/90	1110	GRAB
16176005	26816002	SAMPLE MW-3	06/14/90	1420	GRAB
16176006	26816003	SAMPLE MW-13	06/14/90	1440	GRAB
16176007	26816004	SAMPLE OS-12	06/14/90	1340	GRAB
16176008	26816005	GROUNDWATER MW-99	06/14/90	1130	GRAB
16176009	26816006	GROUNDWATER S-99	06/14/90	1145	GRAB
16176010	26811003	SAMPLE S-6-EPTOX	06/13/90	1100	LEACHATE

TABLE 1

SAMPLE CROSS-REFERENCE SUMMARY

CH2M HILL Laboratory No. 16170

LMG Sample No.	LRD Sample No.	Sample Description				
16170001	26788001	OS25	STA NO 25	06/12/90	1015	
16170002	26788002	OS125	STA NO 125	06/12/90	1000	
16170003	26788003	OS31	STA NO 31	06/11/90	1125	GRAB
16170004	26788004	OS27	STA NO 27	06/12/90	1520	GRAB

TABLE 1

SAMPLE CROSS-REFERENCE SUMMARY

CH2M HILL Laboratory No. 16222

LMG Sample No.	LRD Sample No.	Sample Description			
16222001	26846001	OS-28 GROUNDWATER	06/20/90	1400	GRAB

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Laboratory Name: CH2M HILL/MGM
Lab Sample ID: 16176007
Client Sample ID: OS-12

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: ______

Date Extracted: 06/20/90
Date Analyzed: 06/27/90
Dilution Factor: 1.0

PHENOLIC ACID COMPOUNDS

CAS Number		ug/L	
108-95-2	Phenol	2	U
95-57-8	2-Chlorophenol	2	U
95-48-7	ortho-Cresol	2	U
106-44-5 108-39-4	para-Cresol & meta-Cresol.	2	U
88-75-5	2-Nitrophenol	2	U
105-67-9	2,4-Dimethylphenol	2	U
120-83-2	2,4-Dichlorophenol	2	U
59-50-7	4-Chloro-3-methylphenol .	2	U
88-06-2	2,4,6-Trichlorophenol . .	2	U
51-28-5	2,4-Dinitrophenol	5	U
100-02-7	4-Nitrophenol	5	U
534-52-1	4,6-Dinitro-2-methylphenol	5	U
87-86-5	Pentachlorophenol	5	U
	Tribromophenol SS	82	

CAS Number	ug/L

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

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Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	06/18/90
Lab Sample ID:	16170001	Sample Matrix:	WATER	Date Analyzed:	06/19/90
Client Sample ID:	STA NO 25	Percent Moisture:		Dilution Factor:	1.0

PHENOLIC ACID COMPOUNDS

CAS Number		ug/L	
108-95-2	Phenol	2	U
95-57-8	2-Chlorophenol	2	U
95-48-7	ortho-Cresol	2	U
106-44-5 108-39-4	para-Cresol & meta-Cresol.	2	U
88-75-5	2-Nitrophenol	2	U
105-67-9	2,4-Dimethylphenol	2	U
120-83-2	2,4-Dichlorophenol	2	U
59-50-7	4-Chloro-3-methylphenol .	2	U
88-06-2	2,4,6-Trichlorophenol . .	2	U
51-28-5	2,4-Dinitrophenol	5	U
100-02-7	4-Nitrophenol	5	U
534-52-1	4,6-Dinitro-2-methylphenol	5	U
87-86-5	Pentachlorophenol	5	U
	Tribromophenol SS	74	

CAS Number	ug/L

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

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Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	06/18/90
Lab Sample ID:	16170002	Sample Matrix:	WATER	Date Analyzed:	06/19/90
Client Sample ID:	STA NO 125	Percent Moisture:		Dilution Factor:	1.0

PHENOLIC ACID COMPOUNDS

CAS Number		ug/L	
108-95-2	Phenol	2	U
95-57-8	2-Chlorophenol	2	U
95-48-7	ortho-Cresol	2	U
106-44-5	para-Cresol &		
108-39-4	meta-Cresol.	2	U
88-75-5	2-Nitrophenol	2	U
105-67-9	2,4-Dimethylphenol	2	U
120-83-2	2,4-Dichlorophenol	2	U
59-50-7	4-Chloro-3-methylphenol .	2	U
88-06-2	2,4,6-Trichlorophenol . .	2	U
51-28-5	2,4-Dinitrophenol	5	U
100-02-7	4-Nitrophenol	5	U
534-52-1	4,6-Dinitro-2-methylphenol	5	U
87-86-5	Pentachlorophenol	5	U
	Tribromophenol SS	70	

CAS Number	ug/L

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

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Laboratory Name: CH2M HILL/MGM
Lab Sample ID: 16170004
Client Sample ID: STA NO 27
Concentration: LOW
Sample Matrix: WATER
Percent Moisture: ______
Date Extracted: 06/18/90
Date Analyzed: 06/19/90
Dilution Factor: 1.0

PHENOLIC ACID COMPOUNDS

CAS Number		ug/L	
108-95-2	Phenol	2	U
95-57-8	2-Chlorophenol	2	U
95-48-7	ortho-Cresol	2	U
106-44-5	para-Cresol &		
108-39-4	meta-Cresol.	2	U
88-75-5	2-Nitrophenol	2	U
105-67-9	2,4-Dimethylphenol	2	U
120-83-2	2,4-Dichlorophenol	2	U
59-50-7	4-Chloro-3-methylphenol .	2	U
88-06-2	2,4,6-Trichlorophenol . .	2	U
51-28-5	2,4-Dinitrophenol	5	U
100-02-7	4-Nitrophenol	5	U
534-52-1	4,6-Dinitro-2-methylphenol	5	U
87-86-5	Pentachlorophenol	5	U
	Tribromophenol SS	66	

CAS Number ug/L

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

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Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	06/26/90
Lab Sample ID:	16222001	Sample Matrix:	WATER	Date Analyzed:	06/30/90
Client Sample ID:	OS-28	Percent Moisture:		Dilution Factor:	1.0

PHENOLIC ACID COMPOUNDS

CAS Number		ug/L	
108-95-2	Phenol	2	U
95-57-8	2-Chlorophenol	2	U
95-48-7	ortho-Cresol	2	U
106-44-5	para-Cresol &		
108-39-4	meta-Cresol.	2	U
88-75-5	2-Nitrophenol	2	U
105-67-9	2,4-Dimethylphenol	2	U
120-83-2	2,4-Dichlorophenol	2	U
59-50-7	4-Chloro-3-methylphenol .	2	U
88-06-2	2,4,6-Trichlorophenol . .	2	U
51-28-5	2,4-Dinitrophenol	5	U
100-02-7	4-Nitrophenol	5	U
534-52-1	4,6-Dinitro-2-methylphenol	5	U
87-86-5	Pentachlorophenol	5	U
	Tribromophenol SS	80	

CAS Number	ug/L

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

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JwS

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Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	06/18/90
Lab Sample ID:	16170003	Sample Matrix:	WATER	Date Analyzed:	06/19/90
Client Sample ID:	STA NO 31	Percent Moisture:		Dilution Factor:	1.0

PHENOLIC ACID COMPOUNDS

CAS Number		ug/L		CAS Number	ug/L
108-95-2	Phenol	2	U		
95-57-8	2-Chlorophenol	2	U		
95-48-7	ortho-Cresol	2	U		
106-44-5 108-39-4	para-Cresol & meta-Cresol.	2	U		
88-75-5	2-Nitrophenol	2	U		
105-67-9	2,4-Dimethylphenol	2	U		
120-83-2	2,4-Dichlorophenol	2	U		
59-50-7	4-Chloro-3-methylphenol .	2	U		
88-06-2	2,4,6-Trichlorophenol . .	2	U		
51-28-5	2,4-Dinitrophenol	5	U		
100-02-7	4-Nitrophenol	5	U		
534-52-1	4,6-Dinitro-2-methylphenol	5	U		
87-86-5	Pentachlorophenol	5	U		
	Tribromophenol SS	70			

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

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Laboratory Name: CH2M HILL/MGM
Lab Sample ID: 16176009
Client Sample ID: 0S-99

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: ______

Date Extracted: 06/20/90
Date Analyzed: 06/27/90
Dilution Factor: 1.0

PHENOLIC ACID COMPOUNDS

CAS Number		ug/L	
108-95-2	Phenol	2	U
95-57-8	2-Chlorophenol	2	U
95-48-7	ortho-Cresol	2	U
106-44-5	para-Cresol &		
108-39-4	meta-Cresol.	2	U
88-75-5	2-Nitrophenol	2	U
105-67-9	2,4-Dimethylphenol	2	U
120-83-2	2,4-Dichlorophenol	2	U
59-50-7	4-Chloro-3-methylphenol .	2	U
88-06-2	2,4,6-Trichlorophenol . .	2	U
51-28-5	2,4-Dinitrophenol	5	U
100-02-7	4-Nitrophenol	5	U
534-52-1	4,6-Dinitro-2-methylphenol	5	U
87-86-5	Pentachlorophenol	5	U
	Tribromophenol SS	88	

CAS Number	ug/L

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

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Laboratory Name: CH2M HILL/MGM
Lab Sample ID: S06190B1
Client Sample ID: QC BLANK

Concentration: LOW
Sample Matrix: SOIL
Percent Moisture: ______

Date Extracted: 06/19/90
Date Analyzed: 06/26/90
Dilution Factor: 1.0

PHENOLIC ACID COMPOUNDS

CAS Number		ug/Kg		CAS Number	ug/Kg
108-95-2	Phenol	50	U		
95-57-8	2-Chlorophenol	50	U		
95-48-7	ortho-Cresol	50	U		
106-44-5	para-Cresol &				
108-39-4	meta-Cresol.	50	U		
88-75-5	2-Nitrophenol	50	U		
105-67-9	2,4-Dimethylphenol	50	U		
120-83-2	2,4-Dichlorophenol	50	U		
59-50-7	4-Chloro-3-methylphenol .	50	U		
88-06-2	2,4,6-Trichlorophenol . .	50	U		
51-28-5	2,4-Dinitrophenol	100	U		
100-02-7	4-Nitrophenol	100	U		
534-52-1	4,6-Dinitro-2-methylphenol	100	U		
87-86-5	Pentachlorophenol	100	U		

	Tribromophenol SS	94			

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

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Laboratory Name: CH2M HILL/MGM
Lab Sample ID: W06200B1
Client Sample ID: QC BLANK

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: ______

Date Extracted: 06/20/90
Date Analyzed: 06/27/90
Dilution Factor: 1.0

PHENOLIC ACID COMPOUNDS

CAS Number		ug/L		CAS Number	ug/L
108-95-2	Phenol	2	U		
95-57-8	2-Chlorophenol	2	U		
95-48-7	ortho-Cresol	2	U		
106-44-5 108-39-4	para-Cresol & meta-Cresol.	2	U		
88-75-5	2-Nitrophenol	2	U		
105-67-9	2,4-Dimethylphenol	2	U		
120-83-2	2,4-Dichlorophenol	2	U		
59-50-7	4-Chloro-3-methylphenol .	2	U		
88-06-2	2,4,6-Trichlorophenol . .	2	U		
51-28-5	2,4-Dinitrophenol	5	U		
100-02-7	4-Nitrophenol	5	U		
534-52-1	4,6-Dinitro-2-methylphenol	5	U		
87-86-5	Pentachlorophenol	5	U		
	Tribromophenol SS	86			

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

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ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/MGM
Lab Sample ID: W06180B1
Client Sample ID: QC BLANK

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: ______

Date Extracted: 06/18/90
Date Analyzed: 06/19/90
Dilution Factor: 1.0

PHENOLIC ACID COMPOUNDS

CAS Number		ug/L	
108-95-2	Phenol	2	U
95-57-8	2-Chlorophenol	2	U
95-48-7	ortho-Cresol	2	U
106-44-5 108-39-4	para-Cresol & meta-Cresol.	2	U
88-75-5	2-Nitrophenol	2	U
105-67-9	2,4-Dimethylphenol	2	U
120-83-2	2,4-Dichlorophenol	2	U
59-50-7	4-Chloro-3-methylphenol .	2	U
88-06-2	2,4,6-Trichlorophenol . .	2	U
51-28-5	2,4-Dinitrophenol	5	U
100-02-7	4-Nitrophenol	5	U
534-52-1	4,6-Dinitro-2-methylphenol	5	U
87-86-5	Pentachlorophenol	5	U
	Tribromophenol SS	72	

CAS Number	ug/L

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

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Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	06/26/90
Lab Sample ID:	W06260B3	Sample Matrix:	WATER	Date Analyzed:	07/01/90
Client Sample ID:	QC BLANK	Percent Moisture:		Dilution Factor:	1.0

PHENOLIC ACID COMPOUNDS

CAS Number		ug/L		CAS Number	ug/L
108-95-2	Phenol	2	U		
95-57-8	2-Chlorophenol	2	U		
95-48-7	ortho-Cresol	2	U		
106-44-5 108-39-4	para-Cresol & meta-Cresol.	2	U		
88-75-5	2-Nitrophenol	2	U		
105-67-9	2,4-Dimethylphenol	2	U		
120-83-2	2,4-Dichlorophenol	2	U		
59-50-7	4-Chloro-3-methylphenol .	2	U		
88-06-2	2,4,6-Trichlorophenol . .	2	U		
51-28-5	2,4-Dinitrophenol	5	U		
100-02-7	4-Nitrophenol	5	U		
534-52-1	4,6-Dinitro-2-methylphenol	5	U		
87-86-5	Pentachlorophenol	5	U		
	Tribromophenol SS	70			

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

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Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	06/19/90
Lab Sample ID:	16176007	Sample Matrix:	WATER	Date Analyzed:	06/30/90
Client Sample ID:	OS-12	Percent Moisture:		Dilution Factor:	1.0

PESTICIDE / PCB COMPOUNDS

CAS Number		ug/L		CAS Number	ug/L
319-84-6	alpha-BHC	0.01	U		
319-85-7	beta-BHC	0.02	U		
319-86-8	delta-BHC	0.01	U		
58-89-9	gamma-BHC (Lindane) . . .	0.01	U		
76-44-8	Heptachlor	0.01	U		
309-00-2	Aldrin	0.01	U		
1024-57-3	Heptachlor Epoxide . . .	0.01	U		
959-98-8	Endosulfan I	0.02	U		
60-57-1	Dieldrin	0.02	U		
72-55-9	4,4'-DDE	0.02	U		
72-20-8	Endrin	0.02	U		
33213-65-9	Endosulfan II	0.02	U		
72-54-8	4,4'-DDD	0.02	U		
1031-07-8	Endosulfan Sulfate . . .	0.02	U		
50-29-3	4,4'-DDT	0.02	U		
72-43-5	Methoxychlor	0.04	U		
7421-93-4	Endrin Aldehyde	0.02	U		
12789-03-6	Chlordane	0.1	U		
8001-35-2	Toxaphene	0.5	U		
12674-11-2	Aroclor-1016	0.8	U		
11104-28-2	Aroclor-1221	2	U		
11141-16-5	Aroclor-1232	2	U		
53469-21-9	Aroclor-1242	0.8	U		
12672-29-6	Aroclor-1248	0.4	U		
11097-69-1	Aroclor-1254	0.2	U		
11096-82-5	Aroclor-1260	0.2	U		
	Dibutylchlorendate - SS	89			

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

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Laboratory Name: CH2M HILL/MGM
Lab Sample ID: 16170001
Client Sample ID: STA NO 25

Concentration: LOW
Sample Matrix: WATER
Percent Moisture:

Date Extracted: 06/18/90
Date Analyzed: 06/30/90
Dilution Factor: 1.0

PESTICIDE / PCB COMPOUNDS

CAS Number		ug/L		CAS Number	ug/L
319-84-6	alpha-BHC	0.01	U		
319-85-7	beta-BHC	0.02	U		
319-86-8	delta-BHC	0.01	U		
58-89-9	gamma-BHC (Lindane) . . .	0.01	U		
76-44-8	Heptachlor	0.01	U		
309-00-2	Aldrin	0.01	U		
1024-57-3	Heptachlor Epoxide . . .	0.01	U		
959-98-8	Endosulfan I	0.02	U		
60-57-1	Dieldrin	0.02	U		
72-55-9	4,4′-DDE	0.02	U		
72-20-8	Endrin	0.02	U		
33213-65-9	Endosulfan II	0.02	U		
72-54-8	4,4′-DDD	0.02	U		
1031-07-8	Endosulfan Sulfate . . .	0.02	U		
50-29-3	4,4′-DDT	0.02	U		
72-43-5	Methoxychlor	0.04	U		
7421-93-4	Endrin Aldehyde	0.02	U		
12789-03-6	Chlordane	0.1	U		
8001-35-2	Toxaphene	0.5	U		
12674-11-2	Aroclor-1016	0.8	U		
11104-28-2	Aroclor-1221	2	U		
11141-16-5	Aroclor-1232	2	U		
53469-21-9	Aroclor-1242	0.8	U		
12672-29-6	Aroclor-1248	0.4	U		
11097-69-1	Aroclor-1254	0.2	U		
11096-82-5	Aroclor-1260	0.2	U		
	Dibutylchlorendate - SS	100			

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form I

ORGANICS ANALYSIS DATA SHEET

Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	06/18/90
Lab Sample ID:	16170002	Sample Matrix:	WATER	Date Analyzed:	06/30/90
Client Sample ID:	STA NO 125	Percent Moisture:		Dilution Factor:	1.0

PESTICIDE / PCB COMPOUNDS

CAS Number		ug/L		CAS Number	ug/L
319-84-6	alpha-BHC	0.01	U		
319-85-7	beta-BHC	0.02	U		
319-86-8	delta-BHC	0.01	U		
58-89-9	gamma-BHC (Lindane) . . .	0.01	U		
76-44-8	Heptachlor	0.01	U		
309-00-2	Aldrin	0.01	U		
1024-57-3	Heptachlor Epoxide . . .	0.01	U		
959-98-8	Endosulfan I	0.02	U		
60-57-1	Dieldrin	0.02	U		
72-55-9	4,4′-DDE	0.02	U		
72-20-8	Endrin	0.02	U		
33213-65-9	Endosulfan II	0.02	U		
72-54-8	4,4′-DDD	0.02	U		
1031-07-8	Endosulfan Sulfate . . .	0.02	U		
50-29-3	4,4′-DDT	0.02	U		
72-43-5	Methoxychlor	0.04	U		
7421-93-4	Endrin Aldehyde	0.02	U		
12789-03-6	Chlordane	0.1	U		
8001-35-2	Toxaphene	0.5	U		
12674-11-2	Aroclor-1016	0.8	U		
11104-28-2	Aroclor-1221	2	U		
11141-16-5	Aroclor-1232	2	U		
53469-21-9	Aroclor-1242	0.8	U		
12672-29-6	Aroclor-1248	0.4	U		
11097-69-1	Aroclor-1254	0.2	U		
11096-82-5	Aroclor-1260	0.2	U		
	Dibutylchlorendate - SS	158			

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form I

JWS

CH2M HILL® Engineers Planners Economists Scientists

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/MGM
Lab Sample ID: 16170004
Client Sample ID: STA NO 27

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: ______

Date Extracted: 06/18/90
Date Analyzed: 06/30/90
Dilution Factor: 1.0

PESTICIDE / PCB COMPOUNDS

CAS Number		ug/L		CAS Number	ug/L
319-84-6	alpha-BHC	0.01	U		
319-85-7	beta-BHC	0.02	U		
319-86-8	delta-BHC	0.01	U		
58-89-9	gamma-BHC (Lindane) . . .	0.01	U		
76-44-8	Heptachlor	0.01	U		
309-00-2	Aldrin	0.01	U		
1024-57-3	Heptachlor Epoxide . . .	0.01	U		
959-98-8	Endosulfan I	0.02	U		
60-57-1	Dieldrin	0.02	U		
72-55-9	4,4′-DDE	0.02	U		
72-20-8	Endrin	0.02	U		
33213-65-9	Endosulfan II	0.02	U		
72-54-8	4,4′-DDD	0.02	U		
1031-07-8	Endosulfan Sulfate . . .	0.02	U		
50-29-3	4,4′-DDT	0.02	U		
72-43-5	Methoxychlor	0.04	U		
7421-93-4	Endrin Aldehyde	0.02	U		
12789-03-6	Chlordane	0.1	U		
8001-35-2	Toxaphene	0.5	U		
12674-11-2	Aroclor-1016	0.8	U		
11104-28-2	Aroclor-1221	2	U		
11141-16-5	Aroclor-1232	2	U		
53469-21-9	Aroclor-1242	0.8	U		
12672-29-6	Aroclor-1248	0.4	U		
11097-69-1	Aroclor-1254	0.2	U		
11096-82-5	Aroclor-1260	0.2	U		

Dibutylchlorendate - SS 94

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form I

CH2M HILL® Engineers
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ORGANICS ANALYSIS DATA SHEET

Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	06/26/90
Lab Sample ID:	16222001	Sample Matrix:	WATER	Date Analyzed:	07/01/90
Client Sample ID:	OS-28	Percent Moisture:		Dilution Factor:	1.0

PESTICIDE / PCB COMPOUNDS

CAS Number		ug/L	
319-84-6	alpha-BHC	0.01	U
319-85-7	beta-BHC	0.02	U
319-86-8	delta-BHC	0.01	U
58-89-9	gamma-BHC (Lindane) . . .	0.01	U
76-44-8	Heptachlor	0.01	U
309-00-2	Aldrin	0.01	U
1024-57-3	Heptachlor Epoxide . . .	0.01	U
959-98-8	Endosulfan I	0.02	U
60-57-1	Dieldrin	0.02	U
72-55-9	4,4′-DDE	0.02	U
72-20-8	Endrin	0.02	U
33213-65-9	Endosulfan II	0.02	U
72-54-8	4,4′-DDD	0.02	U
1031-07-8	Endosulfan Sulfate . . .	0.02	U
50-29-3	4,4′-DDT	0.02	U
72-43-5	Methoxychlor	0.04	U
7421-93-4	Endrin Aldehyde	0.02	U
12789-03-6	Chlordane	0.1	U
8001-35-2	Toxaphene	0.5	U
12674-11-2	Aroclor-1016	0.8	U
11104-28-2	Aroclor-1221	2	U
11141-16-5	Aroclor-1232	2	U
53469-21-9	Aroclor-1242	0.8	U
12672-29-6	Aroclor-1248	0.4	U
11097-69-1	Aroclor-1254	0.2	U
11096-82-5	Aroclor-1260	0.2	U
	Dibutylchlorendate - SS	121	

CAS Number	ug/L

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form I

Jws

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ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/MGM
Lab Sample ID: 16170003
Client Sample ID: STA NO 31
Concentration: LOW
Sample Matrix: WATER
Percent Moisture: ______
Date Extracted: 06/18/90
Date Analyzed: 06/30/90
Dilution Factor: 1.0

PESTICIDE / PCB COMPOUNDS

CAS Number		ug/L		CAS Number	ug/L
319-84-6	alpha-BHC	0.01	U		
319-85-7	beta-BHC	0.02	U		
319-86-8	delta-BHC	0.01	U		
58-89-9	gamma-BHC (Lindane) . . .	0.01	U		
76-44-8	Heptachlor	0.01	U		
309-00-2	Aldrin	0.01	U		
1024-57-3	Heptachlor Epoxide . . .	0.01	U		
959-98-8	Endosulfan I	0.02	U		
60-57-1	Dieldrin	0.02	U		
72-55-9	4,4'-DDE	0.02	U		
72-20-8	Endrin	0.02	U		
33213-65-9	Endosulfan II	0.02	U		
72-54-8	4,4'-DDD	0.02	U		
1031-07-8	Endosulfan Sulfate . . .	0.02	U		
50-29-3	4,4'-DDT	0.02	U		
72-43-5	Methoxychlor	0.04	U		
7421-93-4	Endrin Aldehyde	0.02	U		
12789-03-6	Chlordane	0.1	U		
8001-35-2	Toxaphene	0.5	U		
12674-11-2	Aroclor-1016	0.8	U		
11104-28-2	Aroclor-1221	2	U		
11141-16-5	Aroclor-1232	2	U		
53469-21-9	Aroclor-1242	0.8	U		
12672-29-6	Aroclor-1248	0.4	U		
11097-69-1	Aroclor-1254	0.2	U		
11096-82-5	Aroclor-1260	0.2	U		
	Dibutylchlorendate - SS	112			

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form I

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/MGM
Lab Sample ID: 16176009
Client Sample ID: 0S-99

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: ______

Date Extracted: 06/19/90
Date Analyzed: 06/30/90
Dilution Factor: 1.0

PESTICIDE / PCB COMPOUNDS

CAS Number		ug/L	
319-84-6	alpha-BHC	0.01	U
319-85-7	beta-BHC	0.02	U
319-86-8	delta-BHC	0.01	U
58-89-9	gamma-BHC (Lindane)	0.01	U
76-44-8	Heptachlor	0.01	U
309-00-2	Aldrin	0.01	U
1024-57-3	Heptachlor Epoxide	0.01	U
959-98-8	Endosulfan I	0.02	U
60-57-1	Dieldrin	0.02	U
72-55-9	4,4'-DDE	0.02	U
72-20-8	Endrin	0.02	U
33213-65-9	Endosulfan II	0.02	U
72-54-8	4,4'-DDD	0.02	U
1031-07-8	Endosulfan Sulfate	0.02	U
50-29-3	4,4'-DDT	0.02	U
72-43-5	Methoxychlor	0.04	U
7421-93-4	Endrin Aldehyde	0.02	U
12789-03-6	Chlordane	0.1	U
8001-35-2	Toxaphene	0.5	U
12674-11-2	Aroclor-1016	0.8	U
11104-28-2	Aroclor-1221	2	U
11141-16-5	Aroclor-1232	2	U
53469-21-9	Aroclor-1242	0.8	U
12672-29-6	Aroclor-1248	0.4	U
11097-69-1	Aroclor-1254	0.2	U
11096-82-5	Aroclor-1260	0.2	U
	Dibutylchlorendate - SS	94	

CAS Number ug/L

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form I

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/MGM
Lab Sample ID: W06190B1
Client Sample ID: QC BLANK

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: ______

Date Extracted: 06/19/90
Date Analyzed: 06/30/90
Dilution Factor: 1.0

PESTICIDE / PCB COMPOUNDS

CAS Number		ug/L		CAS Number	ug/L
319-84-6	alpha-BHC	0.01	U		
319-85-7	beta-BHC	0.02	U		
319-86-8	delta-BHC	0.01	U		
58-89-9	gamma-BHC (Lindane)	0.01	U		
76-44-8	Heptachlor	0.01	U		
309-00-2	Aldrin	0.01	U		
1024-57-3	Heptachlor Epoxide	0.01	U		
959-98-8	Endosulfan I	0.02	U		
60-57-1	Dieldrin	0.02	U		
72-55-9	4,4′-DDE	0.02	U		
72-20-8	Endrin	0.02	U		
33213-65-9	Endosulfan II	0.02	U		
72-54-8	4,4′-DDD	0.02	U		
1031-07-8	Endosulfan Sulfate	0.02	U		
50-29-3	4,4′-DDT	0.02	U		
72-43-5	Methoxychlor	0.04	U		
7421-93-4	Endrin Aldehyde	0.02	U		
12789-03-6	Chlordane	0.1	U		
8001-35-2	Toxaphene	0.5	U		
12674-11-2	Aroclor-1016	0.8	U		
11104-28-2	Aroclor-1221	2	U		
11141-16-5	Aroclor-1232	2	U		
53469-21-9	Aroclor-1242	0.8	U		
12672-29-6	Aroclor-1248	0.4	U		
11097-69-1	Aroclor-1254	0.2	U		
11096-82-5	Aroclor-1260	0.2	U		
	Dibutylchlorendate - SS	111			

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form I

000022

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ORGANICS ANALYSIS DATA SHEET

Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	06/26/90
Lab Sample ID:	W06260B1	Sample Matrix:	WATER	Date Analyzed:	06/30/90
Client Sample ID:	QC BLANK	Percent Moisture:		Dilution Factor:	1.0

PESTICIDE / PCB COMPOUNDS

CAS Number		ug/L		CAS Number	ug/L
319-84-6	alpha-BHC	0.01	U		
319-85-7	beta-BHC	0.02	U		
319-86-8	delta-BHC	0.01	U		
58-89-9	gamma-BHC (Lindane)	0.01	U		
76-44-8	Heptachlor	0.01	U		
309-00-2	Aldrin	0.01	U		
1024-57-3	Heptachlor Epoxide	0.01	U		
959-98-8	Endosulfan I	0.02	U		
60-57-1	Dieldrin	0.02	U		
72-55-9	4,4'-DDE	0.02	U		
72-20-8	Endrin	0.02	U		
33213-65-9	Endosulfan II	0.02	U		
72-54-8	4,4'-DDD	0.02	U		
1031-07-8	Endosulfan Sulfate	0.02	U		
50-29-3	4,4'-DDT	0.02	U		
72-43-5	Methoxychlor	0.04	U		
7421-93-4	Endrin Aldehyde	0.02	U		
12789-03-6	Chlordane	0.1	U		
8001-35-2	Toxaphene	0.5	U		
12674-11-2	Aroclor-1016	0.8	U		
11104-28-2	Aroclor-1221	2	U		
11141-16-5	Aroclor-1232	2	U		
53469-21-9	Aroclor-1242	0.8	U		
12672-29-6	Aroclor-1248	0.4	U		
11097-69-1	Aroclor-1254	0.2	U		
11096-82-5	Aroclor-1260	0.2	U		
	Dibutylchlorendate - SS	110			

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form I

000023

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ORGANICS ANALYSIS DATA SHEET

Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	06/22/90
Lab Sample ID:	S06220B1	Sample Matrix:	SOIL	Date Analyzed:	06/30/90
Client Sample ID:	QC BLANK	Percent Moisture:		Dilution Factor:	1.0

PESTICIDE / PCB COMPOUNDS

CAS Number		ug/Kg		CAS Number	ug/Kg
319-84-6	alpha-BHC	0.4	U		
319-85-7	beta-BHC	0.8	U		
319-86-8	delta-BHC	0.4	U		
58-89-9	gamma-BHC (Lindane) . . .	0.4	U		
76-44-8	Heptachlor	0.4	U		
309-00-2	Aldrin	0.4	U		
1024-57-3	Heptachlor Epoxide . . .	0.4	U		
959-98-8	Endosulfan I	0.8	U		
60-57-1	Dieldrin	0.8	U		
72-55-9	4,4'-DDE	0.8	U		
72-20-8	Endrin	0.8	U		
33213-65-9	Endosulfan II	0.8	U		
72-54-8	4,4'-DDD	0.8	U		
1031-07-8	Endosulfan Sulfate . . .	0.8	U		
50-29-3	4,4'-DDT	0.8	U		
72-43-5	Methoxychlor	1.6	U		
7421-93-4	Endrin Aldehyde	0.8	U		
12789-03-6	Chlordane	4	U		
8001-35-2	Toxaphene	20	U		
12674-11-2	Aroclor-1016	32	U		
11104-28-2	Aroclor-1221	80	U		
11141-16-5	Aroclor-1232	80	U		
53469-21-9	Aroclor-1242	32	U		
12672-29-6	Aroclor-1248	16	U		
11097-69-1	Aroclor-1254	8	U		
11096-82-5	Aroclor-1260	8	U		
	Dibutylchlorendate - SS	106			
	Tetrachloro-m-xylene - SS	152			

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form I

Jws

ORGANICS ANALYSIS DATA SHEET

Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	06/18/90
Lab Sample ID:	W06180B1	Sample Matrix:	WATER	Date Analyzed:	06/30/90
Client Sample ID:	QC BLANK	Percent Moisture:		Dilution Factor:	1.0

PESTICIDE / PCB COMPOUNDS

CAS Number		ug/L	
319-84-6	alpha-BHC	0.01	U
319-85-7	beta-BHC	0.02	U
319-86-8	delta-BHC	0.01	U
58-89-9	gamma-BHC (Lindane) . . .	0.01	U
76-44-8	Heptachlor	0.01	U
309-00-2	Aldrin	0.01	U
1024-57-3	Heptachlor Epoxide . . .	0.01	U
959-98-8	Endosulfan I	0.02	U
60-57-1	Dieldrin	0.02	U
72-55-9	4,4′-DDE	0.02	U
72-20-8	Endrin	0.02	U
33213-65-9	Endosulfan II	0.02	U
72-54-8	4,4′-DDD	0.02	U
1031-07-8	Endosulfan Sulfate . . .	0.02	U
50-29-3	4,4′-DDT	0.02	U
72-43-5	Methoxychlor	0.04	U
7421-93-4	Endrin Aldehyde	0.02	U
12789-03-6	Chlordane	0.1	U
8001-35-2	Toxaphene	0.5	U
12674-11-2	Aroclor-1016	0.8	U
11104-28-2	Aroclor-1221	2	U
11141-16-5	Aroclor-1232	2	U
53469-21-9	Aroclor-1242	0.8	U
12672-29-6	Aroclor-1248	0.4	U
11097-69-1	Aroclor-1254	0.2	U
11096-82-5	Aroclor-1260	0.2	U
	Dibutylchlorendate - SS	91	

CAS Number	ug/L

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form I

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/MGM
Lab Sample ID: W06260B1
Client Sample ID: QC BLANK

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: ______

Date Extracted: 06/26/90
Date Analyzed: 06/30/90
Dilution Factor: 1.0

PESTICIDE / PCB COMPOUNDS

CAS Number		ug/L	
319-84-6	alpha-BHC	0.01	U
319-85-7	beta-BHC	0.02	U
319-86-8	delta-BHC	0.01	U
58-89-9	gamma-BHC (Lindane)	0.01	U
76-44-8	Heptachlor	0.01	U
309-00-2	Aldrin	0.01	U
1024-57-3	Heptachlor Epoxide	0.01	U
959-98-8	Endosulfan I	0.02	U
60-57-1	Dieldrin	0.02	U
72-55-9	4,4′-DDE	0.02	U
72-20-8	Endrin	0.02	U
33213-65-9	Endosulfan II	0.02	U
72-54-8	4,4′-DDD	0.02	U
1031-07-8	Endosulfan Sulfate	0.02	U
50-29-3	4,4′-DDT	0.02	U
72-43-5	Methoxychlor	0.04	U
7421-93-4	Endrin Aldehyde	0.02	U
12789-03-6	Chlordane	0.1	U
8001-35-2	Toxaphene	0.5	U
12674-11-2	Aroclor-1016	0.8	U
11104-28-2	Aroclor-1221	2	U
11141-16-5	Aroclor-1232	2	U
53469-21-9	Aroclor-1242	0.8	U
12672-29-6	Aroclor-1248	0.4	U
11097-69-1	Aroclor-1254	0.2	U
11096-82-5	Aroclor-1260	0.2	U
	Dibutylchlorendate - SS	110	

CAS Number	ug/L

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form I

000001

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/MGM
Lab Sample ID: 16176007
Client Sample ID: OS-12

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: ____

Date Extracted: 06/19/90
Date Analyzed: 06/24/90
Dilution Factor: 1.0

ORGANOPHOSPHOROUS PESTICIDE COMPOUNDS

CAS Number		ug/L		CAS Number	ug/L
86-50-0	Azinophos methyl (Guthion). .	2	U		
35400-43-2	Bolstar (Sulprofos)	1	U		
2921-88-2	Chlorpyrifos	1	U		
56-72-4	Coumaphos	1	U		
8065-48-3	Demeton O & S	4	U		
333-41-5	Diazinon	1	U		
62-73-7	Dichlorvos	1	U		
298-04-4	Disulfoton	1	U		
13194-48-4	Ethoprop	1	U		
115-90-2	Fensulfothion	2	U		
55-38-9	Fenthion	1	U		
150-50-5	Merphos	NR			
7786-34-7	Mevinphos (Phosdrin)	1	U		
300-76-5	Naled	3	U		
298-00-0	Parathion methyl	1	U		
298-02-2	Phorate	1	U		
299-84-3	Ronnel	1	U		
961-11-5	Stirofos (Rabon)	1	U		
34643-46-4	Tokuthion (Prothiofos) . . .	1	U		
327-98-0	Trichlornate	1	U		

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Comments: NR - Not recovered during method validation at CH2M HILL.

Form I

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ORGANICS ANALYSIS DATA SHEET

Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	06/18/90
Lab Sample ID:	16170001	Sample Matrix:	WATER	Date Analyzed:	06/23/90
Client Sample ID:	STA NO 25	Percent Moisture:		Dilution Factor:	1.0

ORGANOPHOSPHOROUS PESTICIDE COMPOUNDS

CAS Number		ug/L		CAS Number	ug/L
86-50-0	Azinophos methyl (Guthion)	2	U		
35400-43-2	Bolstar (Sulprofos)	1	U		
2921-88-2	Chlorpyrifos	1	U		
56-72-4	Coumaphos	1	U		
8065-48-3	Demeton O & S	4	U		
333-41-5	Diazinon	1	U		
62-73-7	Dichlorvos	1	U		
298-04-4	Disulfoton	1	U		
13194-48-4	Ethoprop	1	U		
115-90-2	Fensulfothion	2	U		
55-38-9	Fenthion	1	U		
150-50-5	Merphos	NR			
7786-34-7	Mevinphos (Phosdrin)	1	U		
300-76-5	Naled	3	U		
298-00-0	Parathion methyl	1	U		
298-02-2	Phorate	1	U		
299-84-3	Ronnel	1	U		
961-11-5	Stirofos (Rabon)	1	U		
34643-46-4	Tokuthion (Prothiofos)	1	U		
327-98-0	Trichlornate	1	U		

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Comments: NR - Not recovered during method validation at CH2M HILL.

Form I

Jws

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/MGM
Lab Sample ID: 16170002
Client Sample ID: STA NO 125
Concentration: LOW
Sample Matrix: WATER
Percent Moisture: ____
Date Extracted: 06/18/90
Date Analyzed: 06/23/90
Dilution Factor: 1.0

ORGANOPHOSPHOROUS PESTICIDE COMPOUNDS

CAS Number		ug/L		CAS Number	ug/L
86-50-0	Azinophos methyl (Guthion). .	2	U		
35400-43-2	Bolstar (Sulprofos)	1	U		
2921-88-2	Chlorpyrifos	1	U		
56-72-4	Coumaphos	1	U		
8065-48-3	Demeton O & S	4	U		
333-41-5	Diazinon	1	U		
62-73-7	Dichlorvos	1	U		
298-04-4	Disulfoton	1	U		
13194-48-4	Ethoprop	1	U		
115-90-2	Fensulfothion	2	U		
55-38-9	Fenthion	1	U		
150-50-5	Merphos	NR			
7786-34-7	Mevinphos (Phosdrin)	1	U		
300-76-5	Naled	3	U		
298-00-0	Parathion methyl	1	U		
298-02-2	Phorate	1	U		
299-84-3	Ronnel	1	U		
961-11-5	Stirofos (Rabon)	1	U		
34643-46-4	Tokuthion (Prothiofos) . . .	1	U		
327-98-0	Trichlornate	1	U		

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Comments: NR - Not recovered during method validation at CH2M HILL.

Form I

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/MGM
Lab Sample ID: 16170004
Client Sample ID: STA NO 27
Concentration: LOW
Sample Matrix: WATER
Percent Moisture: ____
Date Extracted: 06/18/90
Date Analyzed: 06/23/90
Dilution Factor: 1.0

ORGANOPHOSPHOROUS PESTICIDE COMPOUNDS

CAS Number		ug/L		CAS Number	ug/L
86-50-0	Azinophos methyl (Guthion)	2	U		
35400-43-2	Bolstar (Sulprofos)	1	U		
2921-88-2	Chlorpyrifos	1	U		
56-72-4	Coumaphos	1	U		
8065-48-3	Demeton O & S	4	U		
333-41-5	Diazinon	1	U		
62-73-7	Dichlorvos	1	U		
298-04-4	Disulfoton	1	U		
13194-48-4	Ethoprop	1	U		
115-90-2	Fensulfothion	2	U		
55-38-9	Fenthion	1	U		
150-50-5	Merphos	NR			
7786-34-7	Mevinphos (Phosdrin)	1	U		
300-76-5	Naled	3	U		
298-00-0	Parathion methyl	1	U		
298-02-2	Phorate	1	U		
299-84-3	Ronnel	1	U		
961-11-5	Stirofos (Rabon)	1	U		
34643-46-4	Tokuthion (Prothiofos)	1	U		
327-98-0	Trichlornate	1	U		

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Comments: NR - Not recovered during method validation at CH2M HILL.

Form I

Jms

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/MGM
Lab Sample ID: 16222001
Client Sample ID: OS-28
Concentration: LOW
Sample Matrix: WATER
Percent Moisture: ____
Date Extracted: 06/26/90
Date Analyzed: 07/02/90
Dilution Factor: 1.0

ORGANOPHOSPHOROUS PESTICIDE COMPOUNDS

CAS Number		ug/L	
86-50-0	Azinophos methyl (Guthion)	2	U
35400-43-2	Bolstar (Sulprofos)	1	U
2921-88-2	Chlorpyrifos	1	U
56-72-4	Coumaphos	1	U
8065-48-3	Demeton O & S	4	U
333-41-5	Diazinon	1	U
62-73-7	Dichlorvos	1	U
298-04-4	Disulfoton	1	U
563-12-2	Ethion	1	U
13194-48-4	Ethoprop	1	U
115-90-2	Fensulfothion	2	U
55-38-9	Fenthion	1	U
150-50-5	Merphos	NR	
7786-34-7	Mevinphos (Phosdrin)	1	U
300-76-5	Naled	3	U
56-38-2	Parathion ethyl	1	U
298-00-0	Parathion methyl	1	U
298-02-2	Phorate	1	U
299-84-3	Ronnel	1	U
961-11-5	Stirofos (Rabon)	1	U
34643-46-4	Tokuthion (Prothiofos)	1	U
327-98-0	Trichlornate	1	U

CAS Number	ug/L

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Comments: NR - Not recovered during method validation at CH2M HILL.

Form I

Jws

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ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/MGM
Lab Sample ID: 16170003
Client Sample ID: STA NO 31

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: ____

Date Extracted: 06/18/90
Date Analyzed: 06/23/90
Dilution Factor: 1.0

ORGANOPHOSPHOROUS PESTICIDE COMPOUNDS

CAS Number		ug/L	
86-50-0	Azinophos methyl (Guthion)	2	U
35400-43-2	Bolstar (Sulprofos)	1	U
2921-88-2	Chlorpyrifos	1	U
56-72-4	Coumaphos	1	U
8065-48-3	Demeton O & S	4	U
333-41-5	Diazinon	1	U
62-73-7	Dichlorvos	1	U
298-04-4	Disulfoton	1	U
13194-48-4	Ethoprop	1	U
115-90-2	Fensulfothion	2	U
55-38-9	Fenthion	1	U
150-50-5	Merphos	NR	
7786-34-7	Mevinphos (Phosdrin)	1	U
300-76-5	Naled	3	U
298-00-0	Parathion methyl	1	U
298-02-2	Phorate	1	U
299-84-3	Ronnel	1	U
961-11-5	Stirofos (Rabon)	1	U
34643-46-4	Tokuthion (Prothiofos)	1	U
327-98-0	Trichlornate	1	U

CAS Number	ug/L

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Comments: NR - Not recovered during method validation at CH2M HILL.

Form I

JMS

CH2M HILL ®
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ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/MGM
Lab Sample ID: 16176009
Client Sample ID: OS-99
Concentration: LOW
Sample Matrix: WATER
Percent Moisture: ____
Date Extracted: 06/19/90
Date Analyzed: 06/24/90
Dilution Factor: 1.0

ORGANOPHOSPHOROUS PESTICIDE COMPOUNDS

CAS Number		ug/L	
86-50-0	Azinophos methyl (Guthion)	2	U
35400-43-2	Bolstar (Sulprofos)	1	U
2921-88-2	Chlorpyrifos	1	U
56-72-4	Coumaphos	1	U
8065-48-3	Demeton O & S	4	U
333-41-5	Diazinon	1	U
62-73-7	Dichlorvos	1	U
298-04-4	Disulfoton	1	U
13194-48-4	Ethoprop	1	U
115-90-2	Fensulfothion	2	U
55-38-9	Fenthion	1	U
150-50-5	Merphos	NR	
7786-34-7	Mevinphos (Phosdrin)	1	U
300-76-5	Naled	3	U
298-00-0	Parathion methyl	1	U
298-02-2	Phorate	1	U
299-84-3	Ronnel	1	U
961-11-5	Stirofos (Rabon)	1	U
34643-46-4	Tokuthion (Prothiofos)	1	U
327-98-0	Trichlornate	1	U

CAS Number	ug/L

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Comments: NR - Not recovered during method validation at CH2M HILL.

Form I

ORGANICS ANALYSIS DATA SHEET

Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	06/19/90
Lab Sample ID:	W06190B1	Sample Matrix:	WATER	Date Analyzed:	07/02/90
Client Sample ID:	QC BLANK	Percent Moisture:	____	Dilution Factor:	1.0

ORGANOPHOSPHOROUS PESTICIDE COMPOUNDS

CAS Number		ug/L		CAS Number	ug/L
86-50-0	Azinophos methyl (Guthion)	2	U		
35400-43-2	Bolstar (Sulprofos)	1	U		
2921-88-2	Chlorpyrifos	1	U		
56-72-4	Coumaphos	1	U		
8065-48-3	Demeton O & S	4	U		
333-41-5	Diazinon	1	U		
62-73-7	Dichlorvos	1	U		
298-04-4	Disulfoton	1	U		
563-12-2	Ethion	1	U		
13194-48-4	Ethoprop	1	U		
115-90-2	Fensulfothion	2	U		
55-38-9	Fenthion	1	U		
150-50-5	Merphos	NR			
7786-34-7	Mevinphos (Phosdrin)	1	U		
300-76-5	Naled	3	U		
56-38-2	Parathion ethyl	1	U		
298-00-0	Parathion methyl	1	U		
298-02-2	Phorate	1	U		
299-84-3	Ronnel	1	U		
961-11-5	Stirofos (Rabon)	1	U		
34643-46-4	Tokuthion (Prothiofos)	1	U		
327-98-0	Trichlornate	1	U		

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Comments: NR - Not recovered during method validation at CH2M HILL.

Form I

Jws

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ORGANICS ANALYSIS DATA SHEET

Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	06/22/90
Lab Sample ID:	S06220B1	Sample Matrix:	SOIL	Date Analyzed:	06/24/90
Client Sample ID:	QC BLANK	Percent Moisture:		Dilution Factor:	1.0

ORGANOPHOSPHOROUS PESTICIDE COMPOUNDS

CAS Number		ug/Kg		CAS Number	ug/Kg
86-50-0	Azinophos methyl (Guthion)	50	U		
35400-43-2	Bolstar (Sulprofos)	50	U		
2921-88-2	Chlorpyrifos	50	U		
56-72-4	Coumaphos	50	U		
8065-48-3	Demeton O & S	100	U		
333-41-5	Diazinon	50	U		
62-73-7	Dichlorvos	50	U		
298-04-4	Disulfoton	50	U		
13194-48-4	Ethoprop	50	U		
115-90-2	Fensulfothion	50	U		
55-38-9	Fenthion	50	U		
150-50-5	Merphos	NR			
7786-34-7	Mevinphos (Phosdrin)	50	U		
300-76-5	Naled	100	U		
298-00-0	Parathion methyl	50	U		
298-02-2	Phorate	50	U		
299-84-3	Ronnel	50	U		
961-11-5	Stirofos (Rabon)	50	U		
34643-46-4	Tokuthion (Prothiofos)	50	U		
327-98-0	Trichlornate	50	U		

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Comments: NR - Not recovered during method validation at CH2M HILL.

Form I

000036

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ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/MGM
Lab Sample ID: W06180B1
Client Sample ID: QC BLANK

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: ____

Date Extracted: 06/18/90
Date Analyzed: 06/23/90
Dilution Factor: 1.0

ORGANOPHOSPHOROUS PESTICIDE COMPOUNDS

CAS Number		ug/L		CAS Number	ug/L
86-50-0	Azinophos methyl (Guthion). .	2	U		
35400-43-2	Bolstar (Sulprofos)	1	U		
2921-88-2	Chlorpyrifos	1	U		
56-72-4	Coumaphos	1	U		
8065-48-3	Demeton O & S	4	U		
333-41-5	Diazinon	1	U		
62-73-7	Dichlorvos	1	U		
298-04-4	Disulfoton	1	U		
13194-48-4	Ethoprop	1	U		
115-90-2	Fensulfothion	2	U		
55-38-9	Fenthion	1	U		
150-50-5	Merphos	NR			
7786-34-7	Mevinphos (Phosdrin)	1	U		
300-76-5	Naled	3	U		
298-00-0	Parathion methyl	1	U		
298-02-2	Phorate	1	U		
299-84-3	Ronnel	1	U		
961-11-5	Stirofos (Rabon)	1	U		
34643-46-4	Tokuthion (Prothiofos) . . .	1	U		
327-98-0	Trichlornate	1	U		

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Comments: NR - Not recovered during method validation at CH2M HILL.

Form I

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ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/MGM
Lab Sample ID: W06260B1
Client Sample ID: QC BLANK

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: ____

Date Extracted: 06/26/90
Date Analyzed: 07/02/90
Dilution Factor: 1.0

ORGANOPHOSPHOROUS PESTICIDE COMPOUNDS

CAS Number		ug/L	
86-50-0	Azinophos methyl (Guthion)	2	U
35400-43-2	Bolstar (Sulprofos)	1	U
2921-88-2	Chlorpyrifos	1	U
56-72-4	Coumaphos	1	U
8065-48-3	Demeton O & S	4	U
333-41-5	Diazinon	1	U
62-73-7	Dichlorvos	1	U
298-04-4	Disulfoton	1	U
563-12-2	Ethion	1	U
13194-48-4	Ethoprop	1	U
115-90-2	Fensulfothion	2	U
55-38-9	Fenthion	1	U
150-50-5	Merphos	NR	
7786-34-7	Mevinphos (Phosdrin)	1	U
300-76-5	Naled	3	U
56-38-2	Parathion ethyl	1	U
298-00-0	Parathion methyl	1	U
298-02-2	Phorate	1	U
299-84-3	Ronnel	1	U
961-11-5	Stirofos (Rabon)	1	U
34643-46-4	Tokuthion (Prothiofos)	1	U
327-98-0	Trichlornate	1	U

CAS Number	ug/L

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Comments: NR - Not recovered during method validation at CH2M HILL.

Form I

JWS

ILL JALITY ANALYTICS

IN OF CUSTODY RECORD

PPIE PCB OPS OPX VOA TOT DIG TOX TOX pH ICl/ F TDS PLY AL DOC A

OJECT NUMBER	DD28631.A0.30
PROJECT NAME	Stateline Dump
LIENT NAME	BLM
ROJECT MANAGER	Mike Smith / RDD
COPY TO:	PETER LAWSON/RDD
EQUESTED COMP. DATE	nal Turnaround
SAMPLING REQUIREMENTS	SDWA ☐ NPDES ☐ RCRA ☐ OTHER ____
CLIENT ADDRESS AND PHONE NUMBER	CH2MHILL / RDD

ANALYSES REQUESTED

STA NO.	DATE	TIME	COMP	GRAB	SOIL	SAMPLE DESCRIPTIONS (12 CHARACTERS)	# OF CONTAINERS	Pesticides/PCB's	8140	VOC (8010/8020)	RAS Metals	TOC	TOX	pH, Cl⁻, SO4⁼, F⁻, TDS	8040/604	DOC			REMARKS
W-99	6/14/90	11:30		X		Groundwater	11	X	X	X	X	X	X	X	X	X		5	008
S-99	6/14/90	11:45		X		Groundwater	11	X	X	X	X	X	X	X	X	X		6	009
						method blank					X TO	X DIGL		ISO4 ICl	F	X		2W1	

FOR LAB USE ONLY	
LAB#	26816
LAB#	16176
PROJECT NO.	RDD 28631.A0
ACK	
VERIFIED	LK 6/20/90
QUOTE#	
BS	
NO. OF SAMP	
PG	6
OF	6

Water - Fed Ex

MPLED BY AND TITLE TER LAWSON HYDROGEOLOGIST	DATE/TIME 6/14/90 12:00	RELINQUISHED BY	DATE/TIME 6/14/90 1540	HAZWRAP/NEESA Y [✓ N]	
CEIVED BY: Jeffrey C. Morin	DATE/TIME 6/14/90 1540	RELINQUISHED BY: Jeffrey C. Morin	DATE/TIME 6/15/90 1620	QC LEVEL [✓ 1] 2 3	
				COC Yes	ICE Yes
				ANA REQ	TEMP cool
CEIVED BY: Bryan W. Burgess	DATE/TIME 6/19/90 - 0900	RELINQUISHED BY:	DATE/TIME 6/15/90 830	CUST SEAL ✓	Ph C2
				SAMPLE COND. good	
CEIVED BY LAB: Scott Halikeshi	DATE/TIME 6-15-90 900	SAMPLE SHIPPED VIA UPS BUS FED-EX [✓ HAND] OTHER ____	AIR BILL# 46J43289		

MARKS

ENTERED

00006

000042

UALITY ANALYTICS

IN OF CUSTODY RECORD

PPE PEX OPS OPY GUES TOX TOD pH ISO4 PLX PLR DOC

ROJECT NUMBER: DD28361 AB.30
PROJECT NAME: BLM Stateline Dump
CLIENT NAME: BLM - HLC
PROJECT MANAGER: Mike Smith/RDD
COPY TO: Peter Lawson/RDD
REQUESTED COMP. DATE: Normal
SAMPLING REQUIREMENTS: SDWA ☐ NPDES ☐ RCRA ☐ OTHER ____
CLIENT ADDRESS AND PHONE NUMBER:

FOR LAB USE ONLY
LAB# Z6816
LAB#
PROJECT NO. RDD28631.A0
ACK
VERIFIED CK 6/20/90
QUOTE#
BS
NO. OF SAMP
PG 5 OF 6

ANALYSES REQUESTED

STA NO.	DATE	TIME	COMP	GRAB	SOIL	SAMPLE DESCRIPTIONS (12 CHARACTERS)	# OF CONTAINERS	Pesticides/PCB's	8140	VOC	Metals	TOC	TOX	pH, Cl, F, SO4, TDS	8040/604	DOC		LAB ID	REMARKS
12	6/14/90	1340		X		OS12	11	X	X	X	X	X	X	X	X	X		4	007

Water - Fed Ex

SAMPLED BY AND TITLE: Jeffrey C. Morin
DATE/TIME: 6/14/90 1400
RELINQUISHED BY: Jeffrey C. Morin
DATE/TIME: 6/15/90 16:27
RECEIVED BY:
DATE/TIME:
RELINQUISHED BY:
DATE/TIME: 6/18/90 330
RECEIVED BY: Bryan W. Burgess
DATE/TIME: 6/19/90 - 0900
RELINQUISHED BY:
DATE/TIME:
RECEIVED BY LAB: Scott Willetz
DATE/TIME: 6-15-90 300
SAMPLE SHIPPED VIA: UPS BUS FED-EX [✓ HAND] OTHER ____
AIR BILL #

HAZWRAP/NEESA Y [✓ N]
QC LEVEL [✓ 1] 2 3
COC yes
ANA REQ ↓
CUST SEAL ↓
ICE yes
TEMP Cool
Ph <2
SAMPLE COND. GOOD

REMARKS

ENTERED INTO LIMS BJ
COC REVIEWED BJ

[redacted]

HILL QUALITY ANALYTICS
AIN OF CUSTODY RECORD

PROJECT NUMBER RDD28601.A0.30	PROJECT NAME BLM Stateline Dump
CLIENT NAME BLM - HILL	
PROJECT MANAGER Mike Smith /RDD	COPY TO:
REQUESTED COMP. DATE Normal	SAMPLING REQUIREMENTS SDWA ☐ NPDES ☐ RCRA ☐ OTHER ____

CLIENT ADDRESS AND PHONE NUMBER
CHzM Hill /RDD

ANALYSES REQUESTED

STA NO.	DATE	TIME	COMP	GRAB	SOIL	SAMPLE DESCRIPTIONS (12 CHARACTERS)	# OF CONTAINERS	VOCs (6023)	Pest/PCB ppp pex	8140 OPS opx	Rads to = Tot metals Metals Diss	TOC toc	DOC Doc	TOX tox	pH Cl F SO4 TDS	6C4C/604 PLX PLQ		LAB ID
31	6/11/90	1625		X		0S31	11	X	X	X	X	X	X	X	X	X	003	3
27	6/12/90	1520		X		0S27	11	X	X	X	X	X	X	X	X	X	004	4
						method Blank					X	X	X		NO pH TOO			ZW1

FOR LAB USE ONLY
LAB# 26788
LAB# 16170
PROJECT NO. RDD28601.A0.30
ACK
VERIFIED CK 6/19/90
QUOTE#
BS
NO. OF SAMP
PG 2 OF ~~3~~ 2

REMARKS
One container ARR'V Broken only one container available for 003, 004

Wate - Fed Ex
HAZWRAP/NEESA Y [✓ N]
QC LEVEL [✓ 1] 2 3
COC yes
ICE yes
ANA REQ ✓
TEMP cool
CUST SEAL N
Ph <2
SAMPLE COND good

SAMPLED BY AND TITLE Jeffrey C. Morris
DATE/TIME 6/12/90 1000
RELINQUISHED BY: Jeffrey C. Morris
DATE/TIME 6/12/90 1700
RECEIVED BY: Bryan W. Burgess
DATE/TIME 6/18/90 - 0915
RELINQUISHED BY:
DATE/TIME
RECEIVED BY:
DATE/TIME
RELINQUISHED BY:
DATE/TIME
RECEIVED BY LAB: Scott Willey
DATE/TIME 6-14-90 11:00
SAMPLE SHIPPED VIA
UPS [✓ BUS] FED-EX HAND OTHER ____
AIR BILL# Greyhound SDI CO1 771922 6
REMARKS

CH2M HILL QUALITY ANALYTICS

CHAIN OF CUSTODY RECORD

RDD 28631.A0.30

[redacted]

9c ext met DIG — STM WC LEE ~~[illegible]~~ Brandi

PROJECT NUMBER	RDD28601. A0.30
PROJECT NAME	BLM - Stateline Dump
CLIENT NAME	BLM - HILL — CH2M Hill/RDD
CLIENT ADDRESS AND PHONE NUMBER	6U-83 CH2M Hill / RDD
PROJECT MANAGER	PM Mike Smith
COPY TO:	
REQUESTED COMP. DATE	Normal
SAMPLING REQUIREMENTS	SDWA ☐ NPDES ☐ RCRA ☐ OTHER — Water

FOR LAB USE ONLY

LAB#	26788
LAB#	16170
PROJECT NO.	RDD 28601. A0. 30
ACK	
VERIFIED	CK 6/19/90
QUOTE#	
BS	[illegible]
NO. OF SAMP	
PG	1
OF	2

ANALYSES REQUESTED

STA NO.	DATE	TIME	COMP	GRAB	SOIL	SAMPLE DESCRIPTIONS (12 CHARACTERS)	# OF CONTAINERS	VOCs (GVBS)	Pest/PCBs (PEX, PPE)	8140 (OPS, OPX)	Metals (SG = TALMET)	TOC (TOC)	DOC (DOC, filtr)	TOX (TOX)	pH, TDS, F, Cl, SO4 (pH, TDS, F, Cl, ISO4)	8040/6004 (PLP, PLE)	LAB ID	REMARKS
25	6/12/90	1015				OS25	11	X	X	X	X	X	X	NO	X	X	1	NO TOX 001
125	6/12/90	1000				OS125	11	X	X	X	X	X	X	X	X	X	2	002

~~AL2, SB2, AS1, BA2, BE2, CD2, CA2, CR2, CO2, CU2, FE2, PB1, MG2, MN2, HG4, NI2, K2, SE1, AG2, NA2, TL1~~

Level 1 Report to Donell Lane by ~~[illegible]~~ 7/2/90

PPE, OPS, PLE

Hup Reg TOC DOC LGN

Hup Reg TOX - LCP

NO Container For TOX For OS-25

2 TOX containers for OS125 For OS-125

1 Septum UPSIDE DOWN

GV

PH Past Holding Time

SW 6-14

Water - Fed Ex

SAMPLED BY AND TITLE	Jeffrey C. Morris	DATE/TIME	6/12/90 1200
RELINQUISHED BY	Jeffrey C. Morris	DATE/TIME	6/12/90 1700
RECEIVED BY:	Bryan W. Burgess	DATE/TIME	6/18/90 - 0915
RELINQUISHED BY:		DATE/TIME	
RECEIVED BY:		DATE/TIME	
RELINQUISHED BY:		DATE/TIME	
RECEIVED BY LAB:	Scott Willeby	DATE/TIME	6-14-90 11:00

SAMPLE SHIPPED VIA UPS [✓ BUS] FED-EX HAND OTHER ______

AIR BILL# Lifthand 901 801 774 4215

REMARKS

HAZWRAP/NEESA	Y [✓ N]		
QC LEVEL	[✓ 1] 2 3		
COC	yes	ICE	yes
ANA REQ	✓	TEMP	COOL
CUST SEAL	✓	Ph	<2
SAMPLE COND.	good		

ENTERED COC

CH2M HILL QUALITY ANALYTICS

EXT. [redacted]
MET JIM
DIG LEE ~~[illegible]~~

CHAIN OF CUSTODY RECORD RDD28631.A0.30

PROJECT NUMBER	~~RDD28361.A0.30~~
PROJECT NAME	BLM Stateline Dump
CLIENT NAME	CH2M HILL/RDD
CLIENT ADDRESS AND PHONE NUMBER	CH2M HILL
PROJECT MANAGER	Mr. Mike Smith/RDD
COPY TO:	Mr. Peter Lawson/RDD
REQUESTED COMP. DATE	Normal Turnaround

SAMPLING REQUIREMENTS: SDWA ☐ NPDES ☐ RCRA ☐ OTHER ____

FOR LAB USE ONLY

LAB# 2C 846
LAB# 10222
PROJECT NO. RDD28631.A0.30
ACK
VERIFIED 6/24/90
QUOTE#
BS
NO. OF SAMP
PG 2 of 1

ANALYSES REQUESTED

STA NO.	DATE	TIME	COMP	GRAB	SOIL	SAMPLE DESCRIPTIONS (12 CHARACTERS)	# OF CONTAINERS	VOC	8140	Pesticides/PCB's	pH, TDS, Cl, F, SO4	TG± METALS	TOX	TOC	DOC	8040/604		LAB ID	REMARKS
05-28	6/20/90	14:00		X		Groundwater	11	X	X	X	X	X	X	X	X	X		1	001
						Water													
						Method Blank					TDS F	X		X	X				

REMARKS: Level 1
Report to Darrell Lance by 7/9/90

SAMPLED BY AND TITLE	Peter Lawson Hydrogeologist
DATE/TIME	6/20/90 14:00
RELINQUISHED BY	
DATE/TIME	6/21/90 830
RECEIVED BY:	
DATE/TIME	
RELINQUISHED BY:	
DATE/TIME	6/22/90 330
RECEIVED BY:	Kenneth P. Earle
DATE/TIME	6/25/90 0915
RELINQUISHED BY:	
DATE/TIME	
RECEIVED BY LAB:	Scott Willett
DATE/TIME	6-21-90 8:30

SAMPLE SHIPPED VIA: UPS BUS [✓ FED-EX] [✓ HAND] OTHER ____
AIR BILL# 4299864800

HAZWRAP/NEESA Y [✓ N]
QC LEVEL [✓ 1] 2 3
COC YES
ANA REQ: YES
CUST SEAL NO
ICE YES
TEMP COLD
PH < 7
SAMPLE COND. GOOD water

REMARKS

Appendix C
MONITORING WELL BORING LOGS

See Figure 7 for well locations.

BORING LOG

PROJECT NAME: BLM STATELINE DUMP
PROJECT NUMBER: RDD28361.A0

BORING NUMBER: MW-1
PAGE: 1 OF 8

BORING LOCATION: Tulelake, CA

DATE: 06/07/90

INSPECTOR: P. Lawson

DRILL RIG: Ingersoll Rand TH-60

GROUNDWATER DEPTH: 134.56*
6/15/90

CONTRACTOR: Diamond Core Drilling

BORING TYPE: Air-Rotary

BORING ELEVATION: 500.00
(Arbitrary Datum)

CLIENT: BLM

DEPTH BELOW SURFACE (feet)	SAMPLE			STANDARD PENETRATION TEST 6"-6"-6"	SOIL DESCRIPTION	COMMENTS
	INTERVAL (feet)	TYPE & NUMBER	RECOVERY (inches)			
0		C U T T I N G S			SILTY SOIL, red brown with rounded black fine grained basalt fragments (<5%) of total.	*Below mark at top of PVC casing
5					- BASALT, black fine grained with some fragments showing slight vesicular texture.	
10					- As above, but fragments smaller (up to 2 cm) and more uniform in size. Very hard rock.	Drilling very slow : : : : : ~6"/min (rough est.)
15					- BASALT, extremely hard black aphanitic fine grained. Very few vesicles visible. Quartz layer visible on one of the fragments (vein fill?). Small quantity (<1%) of plagioclase phenocrysts.	: : : : : : : : : :
20					- As above, slightly more vesicular texture.	HNu @ background (0.4). Switched from ODEX to straight air rotary drilling at 20 feet.
25		-			- Basalt as above with approximately 5% claystone fragments (few mm diameter). Basalt fragments smaller (few cm diameter).	Drilling speeds up
30						

BORING LOG

PROJECT NAME: BLM STATELINE DUMP
PROJECT NUMBER: RDD28361.A0

BORING NUMBER: MW-1
PAGE: 2 OF 8

BORING LOCATION: Tulelake, CA
DATE: 06/07/90
INSPECTOR: P. Lawson

DRILL RIG: Ingersoll Rand TH-60
GROUNDWATER DEPTH: 134.56* 6/15/90
CONTRACTOR: Diamond Core Drilling

BORING TYPE: Air-Rotary
BORING ELEVATION: 500.00 (Arbitrary Datum)
CLIENT: BLM

DEPTH BELOW SURFACE (feet)	SAMPLE			STANDARD PENETRATION TEST 6"-6"-6"	SOIL DESCRIPTION	COMMENTS
	INTERVAL (feet)	TYPE & NUMBER	RECOVERY (inches)			
30		CUTTINGS			As above.	
35					As above with approximately 1% claystone fragments.	
40					Basalt as above, 3-5% claystone fragments.	HNu at background (0.4).
45					BASALT, 60% black/40% red-brown, slight vesicular texture, fragments very small (1-2 mm), apahanitic, <1% claystone fragments.	
50					BASALT, 95% black aphanitic (~5%) red brown vesicular small vesicles predominant (up to 1 mm diameter), ~1% claystone fragments.	
55					BASALT, black as described above. ~1% claystone fragments.	
60						HNu at background (0.6)

BORING LOG

PROJECT NAME: BLM STATELINE DUMP
PROJECT NUMBER: RDD28361.A0

BORING NUMBER: MW-1
PAGE: 3 OF 8

BORING LOCATION: Tulelake, CA
DATE: 06/07/90
INSPECTOR: P. Lawson

DRILL RIG: Ingersoll Rand TH-60
GROUNDWATER DEPTH: 134.56* 6/15/90
CONTRACTOR: Diamond Core Drilling

BORING TYPE: Air-Rotary
BORING ELEVATION: 500.00 (Arbitrary Datum)
CLIENT: BLM

DEPTH BELOW SURFACE (feet)	SAMPLE INTERVAL (feet)	SAMPLE TYPE & NUMBER	SAMPLE RECOVERY (inches)	STANDARD PENETRATION TEST 6"-6"-6"	SOIL DESCRIPTION	COMMENTS
60		CUTTINGS			BASALT, predominantly black aphanitic with slight vesicular texture, <1% claystone fragments (hole washout?). Black basalt fragments have small reddish oxidized zones in areas on some fragments, may represent the weathering out of less stable minerals. Some fragments have diatomaceous earth coats.	
65					BASALT, black as above, but reddish zones and claystone coatings absent.	
70					BASALT, black fine grained vesicular, <1% reddish zones described above. Small rock fragments (<5 mm diameter), very small vesicles (<1 mm diameter) in ~50% of the rock fragments.	Driller notes easy drilling in this zone
75					As above.	
80					As above.	
85					BASALT, approximately 25% black as described above, approximately 75% reddish brown to dark gray basalt with same physical characteristics.	Rig chatter
90						

BORING LOG

PROJECT NAME: BLM STATELINE DUMP
PROJECT NUMBER: RDD28361.A0

BORING NUMBER: MW-1
PAGE: 4 OF 8

BORING LOCATION: Tulelake, CA
DATE: 06/07/90
INSPECTOR: P. Lawson

DRILL RIG: Ingersoll Rand TH-60
GROUNDWATER DEPTH: 134.56* 6/15/90
CONTRACTOR: Diamond Core Drilling

BORING TYPE: Air-Rotary
BORING ELEVATION: 500.00 (Arbitrary Datum)
CLIENT: BLM

DEPTH BELOW SURFACE (feet)	SAMPLE			STANDARD PENETRATION TEST 6"-6"-6"	SOIL DESCRIPTION	COMMENTS
	INTERVAL (feet)	TYPE & NUMBER	RECOVERY (inches)			
90		CUTTINGS			BASALT, black aphanitic with very small (<1 mm diameter) vesicles. Approximately 1% red basalt fragments.	Rig chatter
95					As above.	
100					BASALT, black fine grained aphanitic. No significant vesicularity, most fragments have reddish brown oxidized zones and veinlets weathered minerals?).	HNu at background (0.4)
105					BASALT, reddish brown to black fragments with vesicular texture, small (<2 mm diameter) vesicles, some red oxidized zones present.	
110					BASALT, black aphanitic vesicular with a few percent red-brown basalt fragments.	
115					BASALT, black aphanitic fine grained with no significant vesicles.	
120						

BORING LOG

PROJECT NAME: BLM STATELINE DUMP
PROJECT NUMBER: RDD28361.A0

BORING NUMBER: MW-1
PAGE: 5 OF 8

BORING LOCATION: Tulelake, CA

DATE: 06/07/90

INSPECTOR: P. Lawson

DRILL RIG: Ingersoll Rand TH-60

GROUNDWATER DEPTH: 134.56* 6/15/90

CONTRACTOR: Diamond Core Drilling

BORING TYPE: Air-Rotary

BORING ELEVATION: 500.00 (Arbitrary Datum)

CLIENT: BLM

DEPTH BELOW SURFACE (feet)	SAMPLE			STANDARD PENETRATION TEST 6"-6"-6"	SOIL DESCRIPTION	COMMENTS
	INTERVAL (feet)	TYPE & NUMBER	RECOVERY (inches)			
120		CUTTINGS			BASALT, black as above with reddish-brown oxidized zones. No vesicles.	
125					BASALT, 60% red-brown slightly vesicular with black phenocrysts (unidentified), 40% black with slight vesicularity.	
130					BASALT, 80% non-vesicular black, 20% reddish brown described above.	
135					BASALT, black fine grained non-vesicular.	
140					As above, rock fragements show extensive coverage by very small vesicles (much less than 1 mm diameter).	
145					As above, rock fragments slightly smaller (harder unit) (up to 5 mm diameter).	
150						

BORING LOG

PROJECT NAME: BLM STATELINE DUMP
PROJECT NUMBER: RDD28361.A0

BORING NUMBER: MW-1
PAGE: 6 OF 8

BORING LOCATION: Tulelake, CA

DATE: 06/07/90

INSPECTOR: P. Lawson

DRILL RIG: Ingersoll Rand TH-60

GROUNDWATER DEPTH: 134.56* 6/15/90

CONTRACTOR: Diamond Core Drilling

BORING TYPE: Air-Rotary

BORING ELEVATION: 500.00 (Arbitrary Datum)

CLIENT: BLM

DEPTH BELOW SURFACE (feet)	SAMPLE INTERVAL (feet)	SAMPLE TYPE & NUMBER	SAMPLE RECOVERY (inches)	STANDARD PENETRATION TEST 6"-6"-6"	SOIL DESCRIPTION	COMMENTS
150		CUTTINGS			As above, but no visible vesicles and red oxidized specks visible on black basalt fragments (weathered out phenocrysts).	
155					As above, <1% claystone fragments (hole washout?).	
160					As above, no claystone fragments.	
165					As above.	
170					As above but vesicular texture.	
175					BASALT, black vesicular with red-brown oxidized zones. May be semi-stable minerals weathering out. Some claystone coatings and void fills. Few specks show iron "peacock" color.	
180						Hole making water at 180' (~1-2 gpm)

BORING LOG

PROJECT NAME: BLM STATELINE DUMP
PROJECT NUMBER: RDD28361.A0

BORING NUMBER: MW-1
PAGE: 7 OF 8

BORING LOCATION: Tulelake, CA

DATE: 06/07/90

INSPECTOR: P. Lawson

DRILL RIG: Ingersoll Rand TH-60

GROUNDWATER DEPTH: 134.56*
6/15/90

CONTRACTOR: Diamond Core Drilling

BORING TYPE: Air-Rotary

BORING ELEVATION: 500.00
(Arbitrary Datum)

CLIENT: BLM

DEPTH BELOW SURFACE (feet)	SAMPLE			STANDARD PENETRATION TEST 6"-6"-6"	SOIL DESCRIPTION	COMMENTS
	INTERVAL (feet)	TYPE & NUMBER	RECOVERY (inches)			
180		CUTTINGS			BASALT, black vesicular (small vesicles up to 2 mm diameter) not extensive. Red-brown specks of weathered minerals much less than 1 mm diameter extensive in fragments.	
185					As above but vesicles smaller (up to 1 mm) diameter and very extensive.	
190					As above.	
195					As above but vesicles not as extensive.	
200					As above, few percentage of claystone fragments.	
205					BASALT, black vesicular with vesicles up to 5 mm diameter. 5% red vesicular basalt fragements. 5-10% claystone fragments.	
210						

BORING LOG

PROJECT NAME: BLM STATELINE DUMP
PROJECT NUMBER: RDD28361.A0

BORING NUMBER: MW-1
PAGE: 8 OF 8

BORING LOCATION: Tulelake, CA

DATE: 06/07/90

INSPECTOR: P. Lawson

DRILL RIG: Ingersoll Rand TH-60

GROUNDWATER DEPTH: 134.56*
6/15/90

CONTRACTOR: Diamond Core Drilling

BORING TYPE: Air-Rotary

BORING ELEVATION: 500.00
(Arbitrary Datum)

CLIENT: BLM

DEPTH BELOW SURFACE (feet)	SAMPLE			STANDARD PENETRATION TEST 6"-6"-6"	SOIL DESCRIPTION	COMMENTS
	INTERVAL (feet)	TYPE & NUMBER	RECOVERY (inches)			
210		CUTTINGS			As above except for: Fewer small vesicles (up to 2 mm diameter. No red vesicular basalt. <1% claystone fragments.	
215					As above but 1-2% red vesicular basalt fragments.	
220					TD=220 feet 3:30 pm 6/7/90 Sump 219.5' - 217.5' Screen 217.5' - 167.5' PVC Blank 167.5' - 0' Sand Pack 219.5' - 163' Bentonite 163' - 157' Grout 157' - 0'	
230						
240						

BORING LOG

PROJECT NAME: BLM STATELINE DUMP
PROJECT NUMBER: RDD28361.A0

BORING NUMBER: MW-2
PAGE: 1 OF 4

BORING LOCATION: Tulelake, CA

DATE: 06/13/90

INSPECTOR: P. Lawson

DRILL RIG: Ingersoll Rand TH-60

GROUNDWATER DEPTH: 69.54*
6/15/90

CONTRACTOR: Diamond Core Drilling

BORING TYPE: Air-Rotary

BORING ELEVATION: 446.99 TOC (PVC)
(Relative)

CLIENT: BLM

DEPTH BELOW SURFACE (feet)	SAMPLE			STANDARD PENETRATION TEST 6"-6"-6"	SOIL DESCRIPTION	COMMENTS
	INTERVAL (feet)	TYPE & NUMBER	RECOVERY (inches)			
0		C U T T I N G S			Silt, buff colored, topsoil layer.	*From mark on top of PVC casing
5					BASALT, brown porphorytic with plagioclase crystals up to several millimeter in diameter.	
10					BASALT, brown and black fragments, fine grained, aphanitic, slightly vesicular.	
15					As above.	: ODEX drilling
20					BASALT, black to gray aphanitic, slightly vesicular.	open hole air rotary drilling :
25					Basalt as above, some fragments show reddish-brown patches (oxidized).	
30						

BORING LOG

PROJECT NAME: BLM STATELINE DUMP
PROJECT NUMBER: RDD28361.A0
BORING NUMBER: MW-2
PAGE: 2 OF 4

BORING LOCATION: Tulelake, CA
DATE: 06/13/90
INSPECTOR: P. Lawson

DRILL RIG: Ingersoll Rand TH-60
GROUNDWATER DEPTH: 69.54* 6/15/90
CONTRACTOR: Diamond Core Drilling

BORING TYPE: Air-Rotary
BORING ELEVATION: 446.99 TOC (PVC) (Relative)
CLIENT: BLM

DEPTH BELOW SURFACE (feet)	SAMPLE			STANDARD PENETRATION TEST 6"-6"-6"	SOIL DESCRIPTION	COMMENTS
	INTERVAL (feet)	TYPE & NUMBER	RECOVERY (inches)			
30		CUTTINGS			BASALT, black to gray with extensive zones where phenocrysts have weathered out and left reddish-brown voids. Voids do not appear to form continuous vesicles ie., plugged up by weathering products (zeolites, etc.).	
35					Basalt as above with 1-2% claystone fragments.	
40					BASALT, black to gray with zones of reddish weathering, slightly vesicular. Up to 1% claystone fragments.	HNu at background. (0.4)
45					Basalt as above with a much more extensive vesicular texture; vesicles up to 2 mm diameter.	
50					Basalt as above with approximately 1% claystone fragments. Cuttings much smaller (<1 cm diameter) indicates harder rock.	Driller notes slow drilling
55					As above. Some large voids infilled with buff colored claystone. One basalt fragment contains a red-brown zone of highly vesicular basalt (cinder basalt) within the slightly less vesicular fragment.	
60						HNu at background (0.4)

BORING LOG

PROJECT NAME: BLM STATELINE DUMP
PROJECT NUMBER: RDD28361.A0

BORING NUMBER: MW-2
PAGE: 3 OF 4

BORING LOCATION: Tulelake, CA
DATE: 06/13/90
INSPECTOR: P. Lawson

DRILL RIG: Ingersoll Rand TH-60
GROUNDWATER DEPTH: 69.54* 6/15/90
CONTRACTOR: Diamond Core Drilling

BORING TYPE: Air-Rotary
BORING ELEVATION: 446.99 TOC (PVC) (Relative)
CLIENT: BLM

DEPTH BELOW SURFACE (feet)	SAMPLE INTERVAL (feet)	SAMPLE TYPE & NUMBER	SAMPLE RECOVERY (inches)	STANDARD PENETRATION TEST 6"-6"-6"	SOIL DESCRIPTION	COMMENTS
60		CUTTINGS			Basalt as above but only 20% of fragments show red weathered zones.	
65					BASALT, black as above with approximately 15% red-brown aphanitic basalt fragments.	
70					As above.	
75					As above but approximately 5% reddish-brown basalt fragments.	First hit water (?)
80					BASALT, black as above with 1-2% claystone fragments, significant vesicular texture (up to 2 mm diameter).	HNu at background (0.4)
85					BASALT, black as above but only slightly vesicular. 1-2% claystone fragments.	
90						

BORING LOG

PROJECT NAME: BLM STATELINE DUMP
PROJECT NUMBER: RDD28361.A0

BORING NUMBER: MW-2
PAGE: 4 OF 4

BORING LOCATION: Tulelake, CA
DATE: 06/13/90
INSPECTOR: P. Lawson

DRILL RIG: Ingersoll Rand TH-60
GROUNDWATER DEPTH: 69.54* 6/15/90
CONTRACTOR: Diamond Core Drilling

BORING TYPE: Air-Rotary
BORING ELEVATION: 446.99 TOC (PVC) (Relative)
CLIENT: BLM

DEPTH BELOW SURFACE (feet)	SAMPLE INTERVAL (feet)	SAMPLE TYPE & NUMBER	SAMPLE RECOVERY (inches)	STANDARD PENETRATION TEST 6"-6"-6"	SOIL DESCRIPTION	COMMENTS
90		C U T T I N G S			BASALT, as above with 5-8% red-brown fragments. Black basalt shows moderate vesicular texture. Claystone coatings on most red-brown fragments and a few black fragments also.	Driller notes that the hole appears to be caving slightly.
95					BASALT, as above but 20% reddish-brown fragments. Large chunk (3 cm) of claystone in this sample.	
100					BASALT, black to gray aphanitic vesicular with red-brown weathered zones, 2-3% claystone fragments.	
105					As above but large fragments (a few cm in diameter) of claystone. Driller notes soft zones while drilling. Probably intercepting discrete layers of claystone several inches thick.	
110					As above but claystone fragments smaller, still approximately 5%, and coatings on basalt fragments present.	TD = 120 ft. at 5:30 pm 6/13/90 Sump 120' - 118' Screen: 118' - 68' PVC Blank 68' - 0' Sand 121'-63' Bentonite Pellets 63'-57' Grout 57'-0'
115					As above.	
120						

BORING LOG

PROJECT NAME: BLM STATELINE DUMP
PROJECT NUMBER: RDD28361.A0

BORING NUMBER: MW-3
PAGE: 1 OF 6

BORING LOCATION: Tulelake, CA
DATE: 06/08/90
INSPECTOR: P. Lawson

DRILL RIG: Ingersoll Rand TH-60
GROUNDWATER DEPTH: 115.79* 6/15/90
CONTRACTOR: Diamond Core Drilling

BORING TYPE: Air-Rotary
BORING ELEVATION: 406.94 TOC (PVC) (Relative)
CLIENT: BLM

DEPTH BELOW SURFACE (feet)	SAMPLE INTERVAL (feet)	SAMPLE TYPE & NUMBER	SAMPLE RECOVERY (inches)	STANDARD PENETRATION TEST 6"-6"-6"	SOIL DESCRIPTION	COMMENTS
0		C U T T I			BASALT, black aphanitic fine grained with approximately 1% claystone fragments. Basalt black when wet; blue-gray when dry.	*Below mark on top of PVC casing
7		N G S			- SANDSTONE, light brown fine grained: grains appear to be volcanic material-red basalt grains, plagioclase grains, black euhedral grains (Pyroxenes?).	
11					- BASALT, black to gray aphanitic vesicular. Vesicles small (up to 1 mm diameter) and fairly extensive (flow top?).	
15					- As above with approximately 1% claystone grains.	
20					BASALT, black to gray predominantly aphanitic, no claystone, vesicles less extensive.	
25					- Basalt as above, 1-2% light brown claystone fragments.	
30						

BORING LOG

PROJECT NAME: BLM STATELINE DUMP
PROJECT NUMBER: RDD28361.A0

BORING NUMBER: MW-3
PAGE: 2 OF 6

BORING LOCATION: Tulelake, CA

DATE: 06/08/90

INSPECTOR: P. Lawson

DRILL RIG: Ingersoll Rand TH-60

GROUNDWATER DEPTH: 115.79*
6/15/90

CONTRACTOR: Diamond Core Drilling

BORING TYPE: Air-Rotary

BORING ELEVATION: 406.94 TOC (PVC)
(Relative)

CLIENT: BLM

DEPTH BELOW SURFACE (feet)	SAMPLE			STANDARD PENETRATION TEST 6"-6"-6"	SOIL DESCRIPTION	COMMENTS
	INTERVAL (feet)	TYPE & NUMBER	RECOVERY (inches)			
30		CUTTINGS			As above.	
35					CLAYSTONE, light brown to red brown containing approximately 5% fine grained volcanic rock grains.	Fast drilling
40					CLAYSTONE, light brown with few percent of fine grained volcanic rock grains.	HNu at background (0.4 ppm)
45					As above.	Fast drilling
50					As above.	
						Fast drilling
55					As above.	
60						

BORING LOG

PROJECT NAME: BLM STATELINE DUMP
PROJECT NUMBER: RDD28361.A0

BORING NUMBER: MW-3
PAGE: 3 OF 6

BORING LOCATION: Tulelake, CA

DATE: 06/08/90

INSPECTOR: P. Lawson

DRILL RIG: Ingersoll Rand TH-60

GROUNDWATER DEPTH: 115.79* 6/15/90

CONTRACTOR: Diamond Core Drilling

BORING TYPE: Air-Rotary

BORING ELEVATION: 406.94 TOC (PVC) (Relative)

CLIENT: BLM

DEPTH BELOW SURFACE (feet)	SAMPLE			STANDARD PENETRATION TEST 6"-6"-6"	SOIL DESCRIPTION	COMMENTS
	INTERVAL (feet)	TYPE & NUMBER	RECOVERY (inches)			
60		C U T			As above but greater percentage (approximately 15%) coherent claystone fragments.	
65		T I N G S			SANDSTONE, fine grained, brown to red brown with volcanic grains, most of sample is clayey material (washout?).	Driller notes fast drilling
70					SILTY SANDSTONE, brown to red brown fairly indurated, fine grained volcanic grains, few larger quartz grains. Most of sample is clayey material (washout?).	
75					As above.	
80					SANDSTONE, as above with approximately 10% black to gray basalt fragments, fine grained, aphanitic.	HNu at background (0.4)
85					As above.	
90						

BORING LOG

PROJECT NAME: BLM STATELINE DUMP
PROJECT NUMBER: RDD28361.A0

BORING NUMBER: MW-3
PAGE: 4 OF 6

BORING LOCATION: Tulelake, CA

DATE: 06/08/90

INSPECTOR: P. Lawson

DRILL RIG: Ingersoll Rand TH-60

GROUNDWATER DEPTH: 115.79*
6/15/90

CONTRACTOR: Diamond Core

BORING TYPE: Air-Rotary

BORING ELEVATION: 406.94 TOC (PVC)
(Relative)

CLIENT: BLM

DEPTH BELOW SURFACE (feet)	SAMPLE INTERVAL (feet)	 TYPE & NUMBER	 RECOVERY (inches)	STANDARD PENETRATION TEST 6"-6"-6"	SOIL DESCRIPTION	COMMENTS
90		CUTTINGS			Mixture of sandstone and basalt fragments (50%/50%) with physical characteristics described above.	
95					BASALT, 80% black aphanitic (gray when dry) with fine vesicular texture (not extensive). 20% brown sandstone fragments as described above.	
100					BASALT, black to gray fine grained mostly aphanitic, fine vesicular texture extensive, claystone fragments (and coatings) up to 1%.	
105					Basalt as above, reddish brown void spaces appear to be weathered out crystals in some areas. Up to 1% claystone fragments.	
110					Basalt as above with 5% brown sandstone fragments.	
115					SANDSTONE, brown fine to medium grained with small amount of silt. Grains consist of volcanic material.	Fast drilling
120						

BORING LOG

PROJECT NAME: BLM STATELINE DUMP
PROJECT NUMBER: RDD28361.A0
BORING NUMBER: MW-3
PAGE: 5 OF 6

BORING LOCATION: Tulelake, CA
DATE: 6/8/90
INSPECTOR: P. Lawson

DRILL RIG: Ingersoll Rand TH-60
GROUNDWATER DEPTH: 115.79* 6/15/90
CONTRACTOR: Diamond Core Drilling

BORING TYPE: Air-Rotary
BORING ELEVATION: 406.94 ft TOC(PVC) (Relative)
CLIENT: BLM

DEPTH BELOW SURFACE (feet)	SAMPLE			STANDARD PENETRATION TEST 6"-6"-6"	SOIL DESCRIPTION	COMMENTS
	INTERVAL (feet)	TYPE & NUMBER	RECOVERY (inches)			
120		CUTTINGS			SANDSTONE, black fine grained. Grains consist of volcanic material: predominantly black and some red basalt grains, some quartz and pyroxenes, plgioclase (?)	No water in hole, HNu at background (0.4)
125					SANDSTONE, brown fine to medium grained described above.	
130					As above.	
135					STANDSTONE, brown as above with 10% black to gray fine grained basalt fragments and approximately 10% red-brown vesicular basalt fragments.	Fast drilling
140					SANDSTONE, brown, fine to medium grained, some silt, volcanic grains.	
145					As above.	
150						

BORING LOG

PROJECT NAME: BLM STATELINE DUMP
PROJECT NUMBER: RDD28361.A0

BORING NUMBER: MW-3
PAGE: 6 OF 6

BORING LOCATION: Tulelake, CA
DATE: 6/8/90
INSPECTOR: P. Lawson

DRILL RIG: Ingersoll Rand TH-60
GROUNDWATER DEPTH: 115.79* 6/15/90
CONTRACTOR: Diamond Core Drilling

BORING TYPE: Air-Rotary
BORING ELEVATION: 406.94 ft TOC (PVC (Relative)
CLIENT: BLM

DEPTH BELOW SURFACE (feet)	SAMPLE			STANDARD PENETRATION TEST 6"-6"-6"	SOIL DESCRIPTION	COMMENTS
	INTERVAL (feet)	TYPE & NUMBER	RECOVERY (inches)			
150		CUTTINGS			As above.	Fast drilling
155					As above.	
160					TD = 160 ft. @ 3:00 pm 6/12/90 Sump 158' - 156' Screen 156' - 106' PVC Blank 106' - 0' Sand 160' - 96' Bentonite Pellets 96' - 88' Grout 88' - 0'	
170						
180						

BORING LOG

PROJECT NAME: BLM STATELINE DUMP
PROJECT NUMBER: RDD28361.A0
BORING NUMBER: MW-4
PAGE: 1 OF 7

BORING LOCATION: Tulelake, CA
DATE: 06/05/90
INSPECTOR: P. Lawson

DRILL RIG: Ingersoll Rand TH-60
GROUNDWATER DEPTH: 155.50* from TOC 6/15/90
CONTRACTOR: Diamond Core Drilling

BORING TYPE: Air-Rotary
BORING ELEVATION: 305.18 ft at TOC (PVC)
CLIENT: BLM

DEPTH BELOW SURFACE (feet)	SAMPLE			STANDARD PENETRATION TEST 6"-6"-6"	SOIL DESCRIPTION	COMMENTS
	INTERVAL (feet)	TYPE & NUMBER	RECOVERY (inches)			
0		CUTTINGS			BASALT, gray to dark gray aphanitic, slight vesicular texture, red-brown oxidized areas visible. Reddish-brown silty material also present in the sample (pulverized red cinder basalt?)	*Below mark on top of PVC casing Hard slow drilling
5					BASALT, dark gray slightly vesicular fine grained. Approximately 5% reddish-brown highly vesicular basalt fragments.	
10					Same as above but some rounded clasts, may represent conglomerate layer seen stratigraphically above the sandstone in roadcut nearby.	
15					SANDSTONE, brown fine grained with significant silt. Volcaniclastic grains.	Drilling H2O turns muddy
16.5					CLAYSTONE, light gray to white.	HNu at background
20					SANDSTONE, dark brown fine grained, volcaniclastic; many mafic grains: black and green pyroxenes (hornblende, augite), volcanic rock grains.	
25					Sandstone as above with significant quantity of rounded pebbles-suggest conglomerate layer.	
30						

BORING LOG

PROJECT NAME: BLM STATELINE DUMP
PROJECT NUMBER: RDD28361.A0
BORING NUMBER: MW-4
PAGE: 2 OF 7

BORING LOCATION: Tulelake, CA
DATE: 06/05/90
INSPECTOR: P. Lawson

DRILL RIG: Ingersoll Rand TH-60
GROUNDWATER DEPTH: 155.50* from TOC 6/15/90
CONTRACTOR: Diamond Core Drilling

BORING TYPE: Air-Rotary
BORING ELEVATION: 305.18 ft at TOC (PVC)
CLIENT: BLM

DEPTH BELOW SURFACE (feet)	SAMPLE			STANDARD PENETRATION TEST 6"-6"-6"	SOIL DESCRIPTION	COMMENTS
	INTERVAL (feet)	TYPE & NUMBER	RECOVERY (inches)			
30		CUTTINGS			As above, no apparent rounded cobbles.	
35					Sandstone, extremely friable rounded pebbles up to a few millimeters in size (Cgl stringer?).	
40					BASALT, black (fine grained), non-vesicular, containing black, green and reddish pheoncrysts most likely hornblende, Augite, and coarser grained plagioclase crystals.	HNU at background. Switch to open hole air rotary drilling after set 38 feet casing (8-1/2" steel)
45					As above.	Driller notes no significant water production : :
50					As above.	40-200 feet All basalt but highly variable in color and grain size. Vesicular red and black fragments tend to be fine grained, while other fragments show the minerals cited above and have phenocrysts up to 1 mm in diameter. Most likely repetative thin flows with vesicular texture at top and coarser grained material below.
55					As above	
60						

BORING LOG

PROJECT NAME: BLM STATELINE DUMP
PROJECT NUMBER: RDD28361.A0

BORING NUMBER: MW-4
PAGE: 3 OF 7

BORING LOCATION: Tulelake, CA

DATE: 06/05/90

INSPECTOR: P. Lawson

DRILL RIG: Ingersoll Rand TH-60

GROUNDWATER DEPTH: 155.50* from TOC 6/15/90

CONTRACTOR: Diamond Core Drilling

BORING TYPE: Air-Rotary

BORING ELEVATION: 305.18 ft at TOC (PVC)

CLIENT: BLM

DEPTH BELOW SURFACE (feet)	SAMPLE			STANDARD PENETRATION TEST 6"-6"-6"	SOIL DESCRIPTION	COMMENTS
	INTERVAL (feet)	TYPE & NUMBER	RECOVERY (inches)			
60		CUTTINGS			As above.	
65					As above.	
70					Hardness increasing at 70 feet. Drilling slower, rock chips smaller, same composition roughly.	
75					As above.	
80					Very hard rock; small chips, composition roughly the same.	
85					Slightly higher fraction of red vesicular basalt (as opposed to black). Other components described above still present.	
90						

BORING LOG

PROJECT NAME: BLM STATELINE DUMP
PROJECT NUMBER: RDD28361.A0

BORING NUMBER: MW-4
PAGE: 4 OF 7

BORING LOCATION: Tulelake, CA
DATE: 06/05/90
INSPECTOR: P. Lawson

DRILL RIG: Ingersoll Rand TH-60
GROUNDWATER DEPTH: 155.50* from TOC 6/15/90
CONTRACTOR: Diamond Core Drilling

BORING TYPE: Air-Rotary
BORING ELEVATION: 305.18 ft at TOC (PVC)
CLIENT: BLM

DEPTH BELOW SURFACE (feet)	SAMPLE			STANDARD PENETRATION TEST 6"-6"-6"	SOIL DESCRIPTION	COMMENTS
	INTERVAL (feet)	TYPE & NUMBER	RECOVERY (inches)			
90		CUTTINGS			Color change to reddish brown vesicular basalt. 5-10% black basalt also present in sample.	
95					BASALT, red-brown vesicular. Coherent rock, small fragments.	
100					BASALT, black fine grained with few clasts of red-brown fine grained basalt (slightly vesicular).	
105					BASALT, red to red-brown vesicular. Vesicles up to 1 mm diameter.	
110					BASALT, as above, some black vesicular as well, approximately 50/50%.	
115					As above in color but less vesicular in nature. Very few vesicles.	
120						

BORING LOG

PROJECT NAME: BLM STATELINE DUMP
PROJECT NUMBER: RDD28361.A0

BORING NUMBER: MW-4
PAGE: 5 OF 7

BORING LOCATION: Tulelake, CA

DATE: 06/05/90

INSPECTOR: P. Lawson

DRILL RIG: Ingersoll Rand TH-60

GROUNDWATER DEPTH: 155.50* from TOC 6/15/90

CONTRACTOR: Diamond Core

BORING TYPE: Air-Rotary

BORING ELEVATION: 305.18 ft at, TOC (PVC)

CLIENT: BLM

DEPTH BELOW SURFACE (feet)	SAMPLE			STANDARD PENETRATION TEST 6"-6"-6"	SOIL DESCRIPTION	COMMENTS
	INTERVAL (feet)	TYPE & NUMBER	RECOVERY (inches)			
120		CUTTINGS			As above.	
125					BASALT, black and red brown, mostly fine grained, a few percentage of clasts show vesicular texture. Fragments small and uniform in size.	
130					As above.	
135					BASALT, black vesicular fine grained. Small vesicles up to approximately 2 mm diameter.	
140					BASALT, black to red, minor vesicular texture. Red clasts fine grained with no identifiable crystals, black fragments show abundant mafic pyroxenes (green to black).	
145					BASALT, red-brown fine grained with abundant vesicles, some secondary cavity filling with white mineral (plagioclase?).	
150						

BORING LOG

PROJECT NAME: BLM STATELINE DUMP
PROJECT NUMBER: RDD28361.A0

BORING NUMBER: MW-4
PAGE: 6 OF 7

BORING LOCATION: Tulelake, CA
DATE: 06/05/90
INSPECTOR: P. Lawson

DRILL RIG: Ingersoll Rand TH-60
GROUNDWATER DEPTH: 155.50* from TOC 6/15/90
CONTRACTOR: Diamond Core Drilling

BORING TYPE: Air-Rotary
BORING ELEVATION: 305.18 ft at TOC (PVC)
CLIENT: BLM

DEPTH BELOW SURFACE (feet)	SAMPLE			STANDARD PENETRATION TEST 6"-6"-6"	SOIL DESCRIPTION	COMMENTS
	INTERVAL (feet)	TYPE & NUMBER	RECOVERY (inches)			
150		CUTTINGS			As above.	
155					As above but less vesicular texture, vesicles are filled with plagioclase and green mineral (white-green?).	
160					As above.	
165					As above with approximately 30% black vesicular basalt fragments, rest as above.	
170					BASALT, predominantly black fine grained. Pyroxene phenocrysts abundant, a few percent plagioclase phenocrysts.	
175					As above but some fragments and vesicles coated or filled with very soft tan claystone.	
180						

BORING LOG

PROJECT NAME: BLM STATELINE DUMP
PROJECT NUMBER: RDD28361.A0

BORING NUMBER: MW-4
PAGE: 7 OF 7

BORING LOCATION: Tulelake, CA
DATE: 6/5/90
INSPECTOR: P. Lawson

DRILL RIG: Ingersoll Rand TH-60
GROUNDWATER DEPTH: 155.50* ft from TOC 6/15/90
CONTRACTOR: Diamond Core Drilling

BORING TYPE: Air-Rotary
BORING ELEVATION: 305.18' at TOC (PVC)
CLIENT: BLM

DEPTH BELOW SURFACE (feet)	SAMPLE INTERVAL (feet)	TYPE & NUMBER	RECOVERY (inches)	STANDARD PENETRATION TEST 6"-6"-6"	SOIL DESCRIPTION	COMMENTS
180		C U T T I N G S			As above; claystone present. Slightly larger rock fragments up to 1 cm diameter. May indicate flow top.	Driller notes strong rig chatter at approx. 178-180 ft May have hit fracture zone.
185					BASALT, dense black and green fine grained aphanitic. Some claystone filling visible.	Slow drilling
190					As above.	
195					As above.	
200					TD = 200 feet 6/6/90 10:00 am Sump 200' - 198' Stainless steel screen 198' - 148' Blank PVC casing 148' - 0' Sand Pack 200' - 142' Bentonite 142' - 137' Cement Grout 137' - 0'	
210						

Appendix D

MONITORING WELL CONSTRUCTION DIAGRAMS

See Figure 7 for well locations.

MONITORING WELL RECORD DRAWING & CONSTRUCTION LOG

PROJECT NAME BLM Stateline Dump PROJECT NO. RDD 28361.A0.30

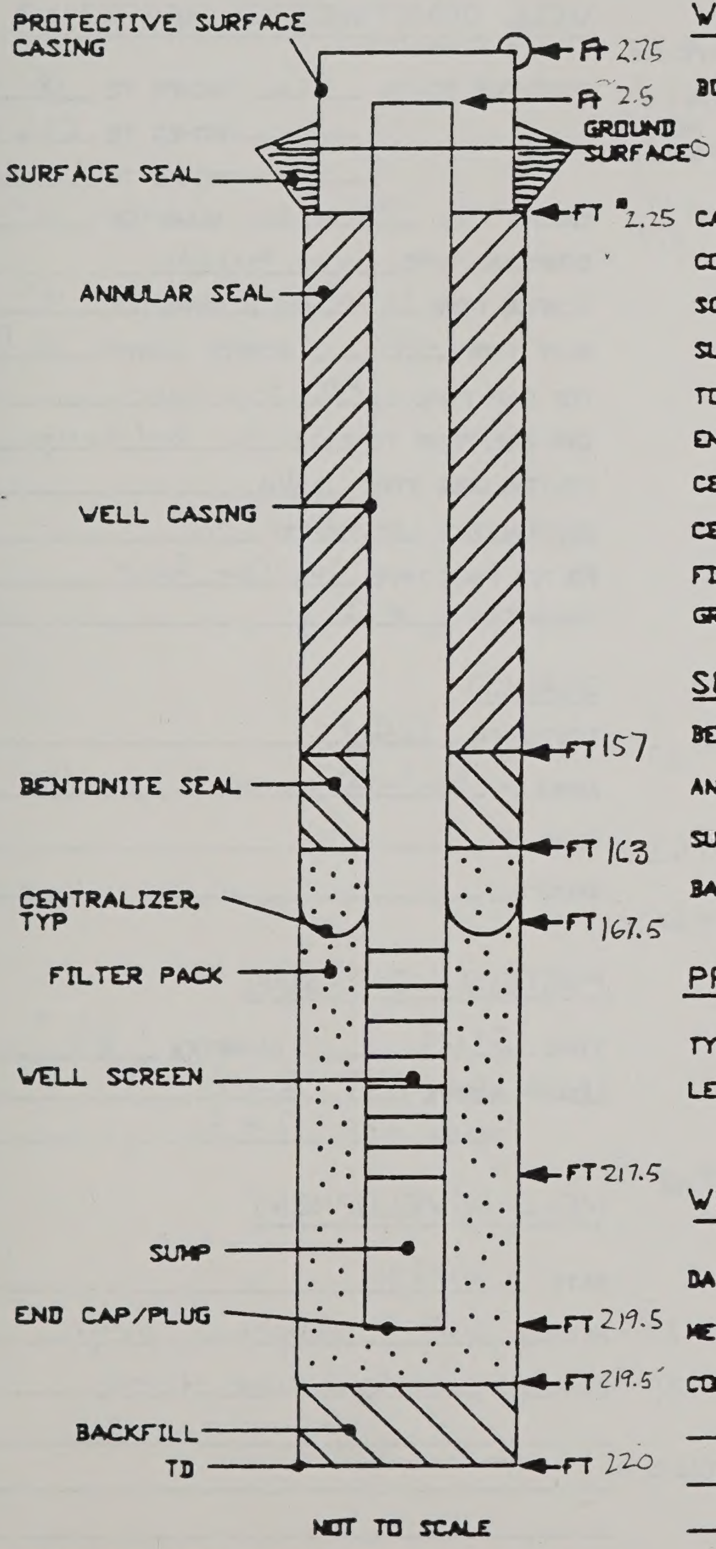
WELL NO. MW-1 FIELD OBSERVERS P. LAWSON

ELEV, ~~NGVD~~ relative (top of well casing) 500.00 (datum) SURFACE ELEV, NGVD ~ 497.5

Depth to WATER LEVEL ELEV/DATE, ~~NGVD~~ 134.26 ft 6/15/90 START DATE 6/7/90

DRILLING CONTRACTOR Diamond Core Drilling FINISH DATE 6/7/90

DRILLING METHOD TH-60 Ingersoll Rand (Air Rotary)



WELL CONSTRUCTION MATERIALS

BOREHOLE DIA(S) 8½ INCHES TO 18 FT BGS

6 INCHES TO 220 FT BGS

INCHES TO FT BGS

CASING TYPE PVC sch 40 DIAMETER 4"

COUPLING TYPE Screw Threads

SCREEN TYPE Stainless Steel DIAMETER 4"

SLOT SIZE .020 SCREEN LENGTH 50 ft

TOP CAP TYPE PVC slip cap

END CAP/PLUG TYPE sump (stainless steel)

CENTRALIZER TYPE N/A

CENTRALIZER LOCATION(S) N/A

FILTER PACK TYPE #3 Lonestar sand

GRADATION #3

SEAL(S)

BENTONITE Pellets

ANNULAR Cement-bentonite grout

SURFACE "

BACKFILL NATIVE MATERIAL CAVED INTO HOLE

PROTECTIVE CASING

TYPE Steel DIAMETER 8½"

LENGTH ABOVE (G.S.) 2 ft

BELOW (G.S.) 18 ft

WELL DEVELOPMENT

DATE 6/13/90

METHOD Bail then submersible pump

COMMENTS Clear water produced

■ DEPTHS BELOW GROUND SURFACE

MONITORING WELL RECORD DRAWING & CONSTRUCTION LOG

PROJECT NAME BLM Stateline Dump PROJECT NO. RDD28361.A0.30

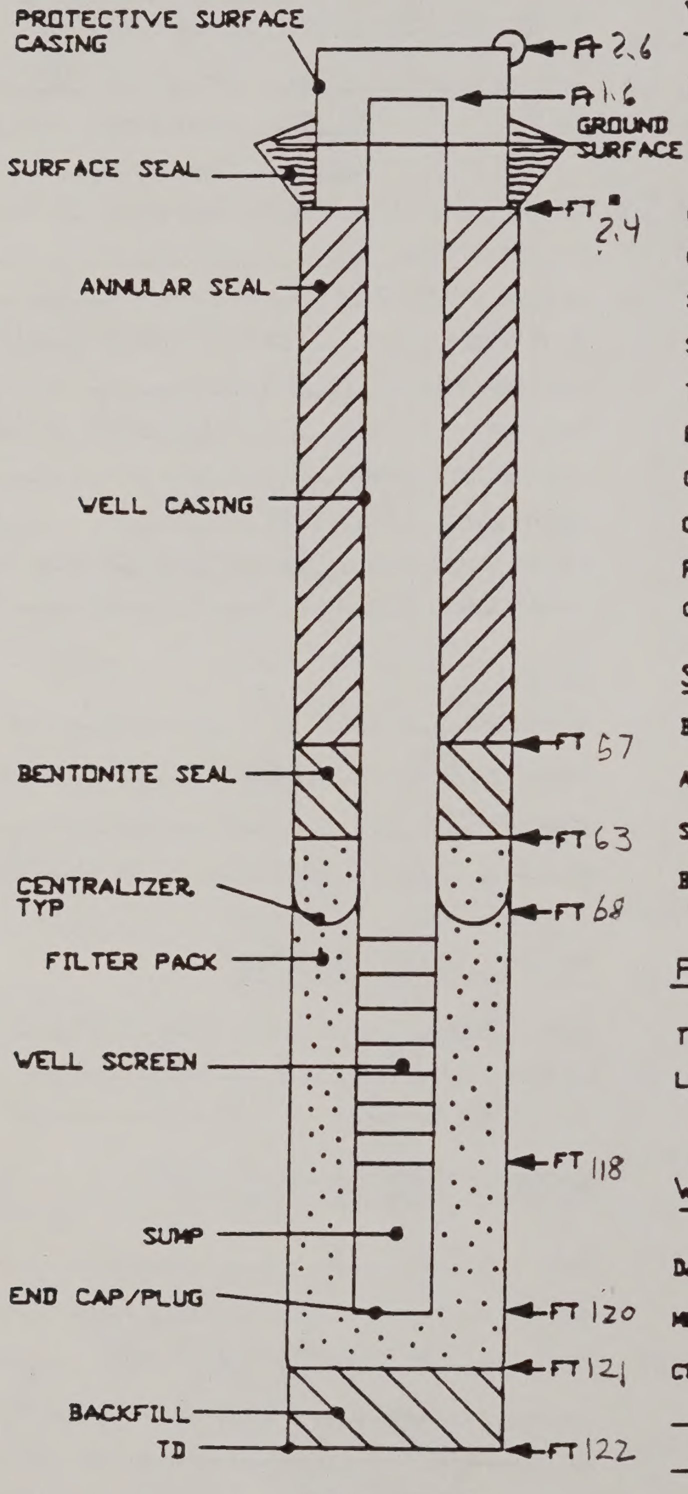
WELL NO. MW-2 FIELD OBSERVERS P LAWSON

ELEV, ~~NGVD~~ relative (top of well casing) 446.99 SURFACE ELEV, NGVD ≃ 449.4

Depth to WATER LEVEL ~~ELEV~~/DATE, ~~NGVD~~ 69.28 ft from TOC (PVC) 6/15/90 START DATE 6/13/90

DRILLING CONTRACTOR Diamond Core Drilling FINISH DATE 6/14/90

DRILLING METHOD Ingersoll Rand TH-60 (air rotary)



NOT TO SCALE

* DEPTHS BELOW GROUND SURFACE

WELL CONSTRUCTION MATERIALS

BOREHOLE DIA(S) 8½ INCHES TO 18 FT BGS
6 INCHES TO 222 FT BGS
INCHES TO FT BGS

CASING TYPE PVC sch 40 DIAMETER 4"

COUPLING TYPE Screw threads

SCREEN TYPE SS wire wrap DIAMETER 4"

SLOT SIZE .020 SCREEN LENGTH 50 ft

TOP CAP TYPE PVC slip cap

END CAP/PLUG TYPE Stainless Steel sump

CENTRALIZER TYPE N/A

CENTRALIZER LOCATION(S) N/A

FILTER PACK TYPE Lone Star Sand

GRADATION #3

SEAL(S)

BENTONITE Pellets

ANNULAR Bentonite-cement grout

SURFACE "

BACKFILL

PROTECTIVE CASING

TYPE Steel DIAMETER 8½"

LENGTH ABOVE (G.S.) 2.6 ft

BELOW (G.S.) 2.4 ft

WELL DEVELOPMENT

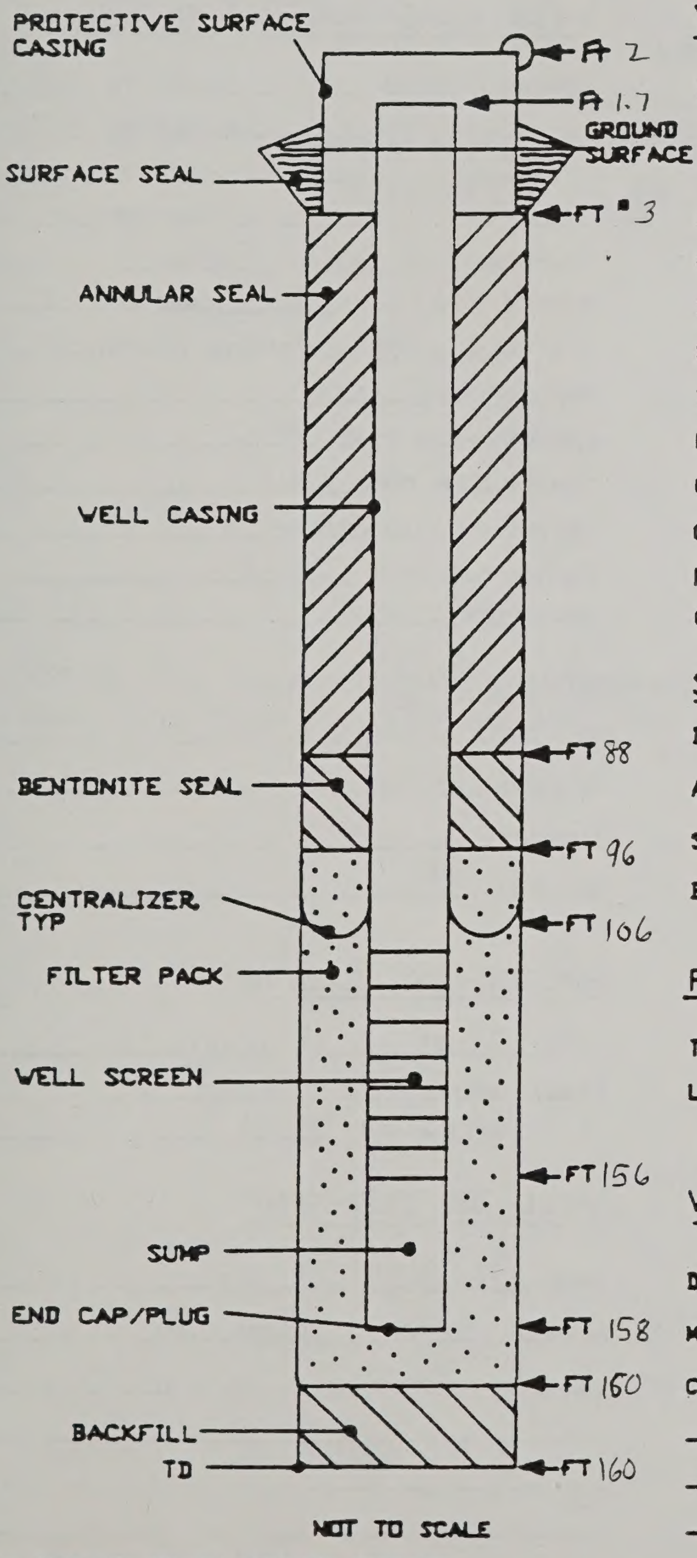
DATE 6/15/90

METHOD Bail & submersible pump

COMMENTS Developed clear water

MONITORING WELL RECORD DRAWING & CONSTRUCTION LOG

PROJECT NAME BLM Stateline Dump PROJECT NO. RDD 28361.A0.30
WELL NO. MW-3 FIELD OBSERVERS P Lawson
ELEV, ~~NGVD~~ relative (top of well casing) 406.94 SURFACE ELEV, NGVD ~405 ft
Depth to WATER ~~LEVEL~~ ELEV/DATE, ~~NGVD~~ 115.95 from toc (pvc) 6/15/90 START DATE 6/8/90
DRILLING CONTRACTOR Diamond Core Drilling FINISH DATE 6/12/90
DRILLING METHOD Ingersoll Rand TH-60 (air rotary)



■ DEPTHS BELOW GROUND SURFACE

WELL CONSTRUCTION MATERIALS

BOREHOLE DIA(S) 8½ INCHES TO 18 FT BGS
6 INCHES TO 160 FT BGS
INCHES TO FT BGS
CASING TYPE PVC Sch 40 DIAMETER 4"
COUPLING TYPE Screw threads
SCREEN TYPE Stainless DIAMETER 4"
SLOT SIZE .020 SCREEN LENGTH 50 ft
TOP CAP TYPE PVC slip cap
END CAP/PLUG TYPE SS Sump
CENTRALIZER TYPE N/A
CENTRALIZER LOCATION(S) NA
FILTER PACK TYPE Lone Star Sand
GRADATION # 3

SEAL(S)

BENTONITE Pellets
ANNULAR Neat cement grout
SURFACE "
BACKFILL —

PROTECTIVE CASING

TYPE Steel DIAMETER 8½"
LENGTH ABOVE (G.S.) 2 ft
BELOW (G.S.) 3 ft

WELL DEVELOPMENT

DATE 6/14/90
METHOD Bail then submersible pump
COMMENTS Developed clear H_2O

MONITORING WELL RECORD DRAWING & CONSTRUCTION LOG

PROJECT NAME BLM Stateline Dump PROJECT NO. RDD28361.A0

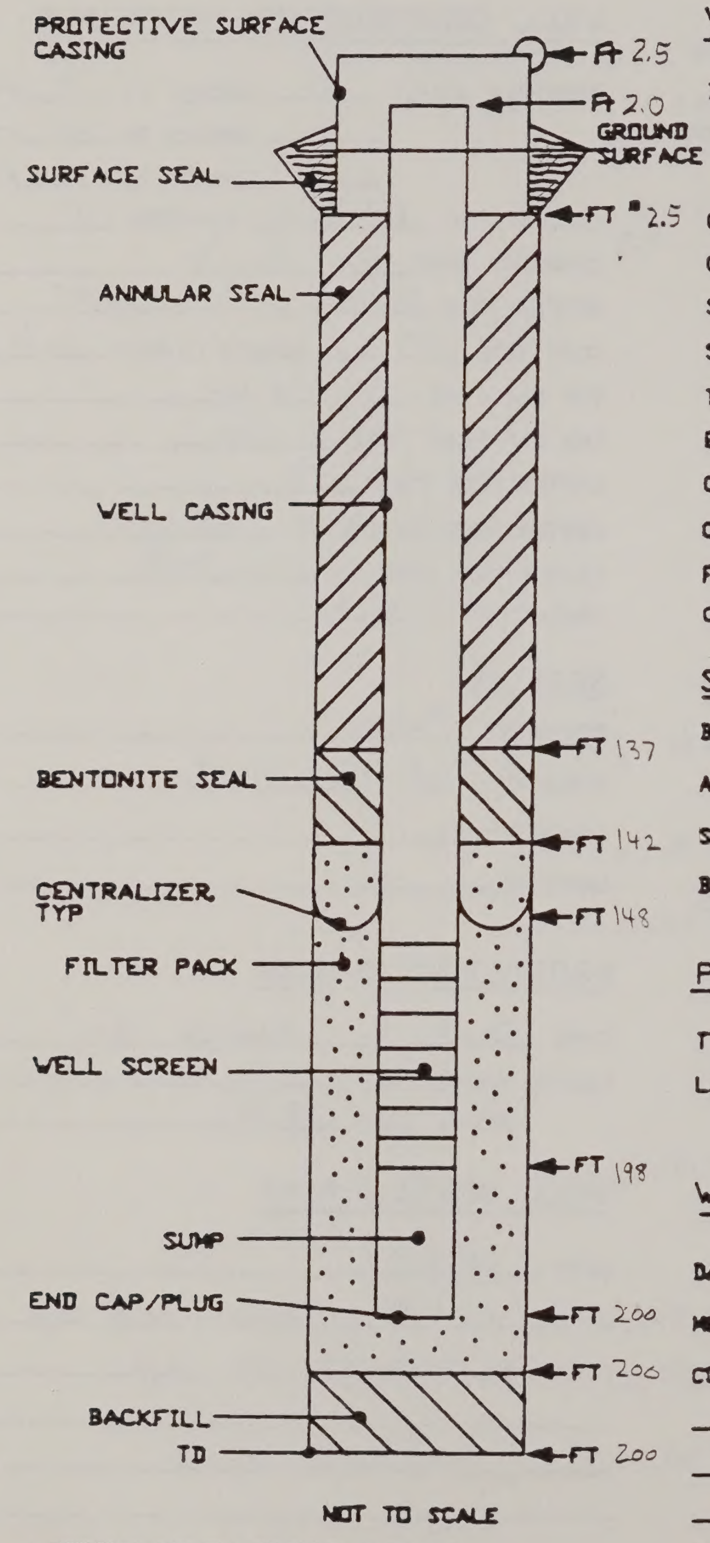
WELL NO. MW-4 FIELD OBSERVERS P. LAWSON

ELEV, ~~NGVD~~ (top of well casing) 305.18 PVC SURFACE ELEV, ~~NGVD~~ relative ~303.2

Depth to WATER ~~LEVEL~~ relative ELEV/DATE, ~~NGVD~~ 156.45 ft from TOC 6/8/90 START DATE 6/5/90

DRILLING CONTRACTOR Diamond Core Drilling FINISH DATE 6/6/90

DRILLING METHOD TH-60 Ingersoll Rand (Air Rotary)



* DEPTHS BELOW GROUND SURFACE

WELL CONSTRUCTION MATERIALS

BOREHOLE DIA(S) 8 1/2 INCHES TO 38 FT BGS

6 INCHES TO 200 FT BGS

INCHES TO FT BGS

CASING TYPE PVC DIAMETER 4"

COUPLING TYPE Screw Threads

SCREEN TYPE Stainless Steel DIAMETER 4"

SLOT SIZE .020" SCREEN LENGTH 50 ft

TOP CAP TYPE PVC

END CAP/PLUG TYPE PVC

CENTRALIZER TYPE N/A

CENTRALIZER LOCATION(S) —

FILTER PACK TYPE Sand

GRADATION #3

SEAL(S)

BENTONITE Pellets

ANNULAR Cement-Bentonite Grout

SURFACE "

BACKFILL N/A

PROTECTIVE CASING

TYPE Steel DIAMETER 8 1/2"

LENGTH ABOVE (G.S.) 2 1/2 ft

BELOW (G.S.) 2 1/2 ft

WELL DEVELOPMENT

DATE 6/13/90

METHOD Bailer & submersible pump

COMMENTS Developed Clear water

Appendix E

MONITORING WELL SAMPLING ANALYTICAL DATA SHEETS

NOTE: This appendix contains the analytical results from three rounds of sampling during June, August, and October, 1990. (See Figure 7 for well locations).

Appendix E
MONITORING WELL SAMPLING ANALYTICAL DATA SHEETS
(continued)

FIRST SAMPLING ROUND
(June 1990)

Sample results from the following wells are included in this appendix:

- MW-1
- MW-2
- MW-3
- MW-13 (duplicate of MW-3)
- MW-4
- MW-99 (field blank)

CH2M HILL
Engineers
Planners
Economists
Scientists

CASE NARRATIVE
General Chemistry
26816

I. Holding Time: All criteria met.

II. Analysis:

A.	Calibration:	Acceptance criteria met.
B.	Blanks:	Acceptance criteria met.
C.	Matrix Spike:	Acceptance criteria met.
D.	Duplicate Analysis:	Acceptance criteria met.
E.	Lab Control Sample:	Acceptance criteria met.
F.	Other:	None.

III. I certify that this data package is in compliance with the terms and conditions agreed to by the client and CH2M HILL, both technically and for completeness, for other than the conditions detailed above.

SIGNED: Randall Wright DATE: 7/17/90
Randall L. Wright
General Chemistry Supervisor

000001

CASE NARRATIVE
Metals

26816

I. Holding Time:
All holding times were met.

II. Analysis:

A. Blanks:
All acceptance criteria were met.

B. Calibration:
All acceptance criteria were met.

C. ICP Interference Check Sample:
All acceptance criteria were met.

D. Spike Sample Analysis:
All acceptance criteria were met.

E. Duplicate Sample Analysis:
The relative percent difference of Arsenic, Lead, Cadimium and Silver in sample 26911-4 (3bs) and its duplicate exceeded our acceptance criteria of ± 20%.

F. Laboratory Control Sample Analysis:
All acceptance criteria were met.

G. ICP Serial Dilution:
Not required for this level QC.

H. Other:
None.

III. I certify that this data package is in compliance with the terms and conditions agreed to by the client and CH2M HILL, both technically and for completeness, for other than the conditions detailed above.

Signed: Fred Bickell Date: 7/17/90

Fred Bickell
Cations Supervisor

CH2M HILL
Engineers
Planners
Economists
Scientists

REPORT OF ANALYTICAL RESULTS

Date: 07/17/90
Page: 2 of 5

Client: CH2M HILL/RDD
P.O. BOX 492478
REDDING, CA 96049

Atten: MR. MIKE SMITH

Project Number: RDD28631.A0
BLM STATELINE DUMP
Laboratory Number: 26811
Date Received: 06/15/90

Sample Description: MW-1
Laboratory Sample Number: 26811002 **Date Collected: 06/13/90** **Matrix: WATER**

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Silver	EPA200.7/SW6010	3	<3	ug/L	06/29/90
Aluminum	EPA200.7/SW6010	8	9	ug/L	06/29/90
Arsenic	EPA206.2/SW7060	0.5	1.1	ug/L	06/26/90
Barium	EPA200.7/SW6010	1	3	ug/L	06/29/90
Beryllium	EPA200.7/SW6010	1	<1	ug/L	06/29/90
Calcium	EPA200.7/SW6010	50	15800	ug/L	06/29/90
Cadmium	EPA200.7/SW6010	1	<1	ug/L	06/29/90
Cobalt	EPA200.7/SW6010	4	<4	ug/L	06/29/90
Chromium	EPA200.7/SW6010	3	<3	ug/L	06/29/90
Copper	EPA200.7/SW6010	3	4	ug/L	06/29/90
Dissolved Organic Carbon	EPA415.2	1.0	1.2	mg/L	07/03/90
Fluoride	EPA340.2	0.05	0.08	mg/L	06/25/90
Iron	EPA200.7/SW6010	20	26	ug/L	06/29/90
Mercury	EPA245.1/SW7470	0.2	<0.2	ug/L	06/29/90
Chloride	EPA300.0	1.0	2.5	mg/L	06/15/90
Sulfate	EPA300.0	1.0	3.0	mg/L	06/15/90
Potassium	EPA200.7/SW6010	350	1600	ug/L	06/29/90
Magnesium	EPA200.7/SW6010	24	8310	ug/L	06/29/90
Manganese	EPA200.7/SW6010	1	1	ug/L	06/29/90
Sodium	EPA200.7/SW6010	50	7560	ug/L	06/29/90
Nickel	EPA200.7/SW6010	6	<6	ug/L	06/29/90
Lead	EPA239.2/SW7421	0.8	1.9	ug/L	06/22/90
pH	EPA150.1	----	8.11	units	06/15/90
Antimony	EPA200.7/SW6010	10	<10	ug/L	06/29/90
Selenium	EPA270.2/SW7740	0.8	<0.8	ug/L	06/26/90
Total Dissolved Solids	EPA160.1	3	147	mg/L	06/18/90
Thallium	EPA279.2/SW7841	0.6	<0.6	ug/L	06/25/90
Total Organic Carbon	EPA415.2	1.0	<1.0	mg/L	07/03/90
Total Organic Halogen as CL-	SW9020	5.0	<5.0	ug/L	06/27/90
Vanadium	EPA200.7/SW6010	3	11	ug/L	06/29/90
Zinc	EPA200.7/SW6010	3	162	ug/L	06/29/90

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

Reviewed by: J Hawley

INRPRPT(v900202)

CH2M HILL
Engineers
Planners
Economists
Scientists

REPORT OF ANALYTICAL RESULTS

Date: 07/17/90
Page: 1 of 7

Client: CH2M HILL/RDD
P.O. BOX 492478
REDDING, CA 96049

Atten: MR. MIKE SMITH

Project Number: RDD28631.AO.30
BLM STATELINE DUMP
Laboratory Number: 26816
Date Received: 06/15/90

Sample Description: MW-2
Laboratory Sample Number: 26816001 Date Collected: 06/15/90 Matrix: WATER

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Silver	EPA200.7/SW6010	3	<3	ug/L	07/02/90
Aluminum	EPA200.7/SW6010	8	165	ug/L	07/02/90
Arsenic	EPA206.2/SW7060	0.5	0.7	ug/L	06/26/90
Barium	EPA200.7/SW6010	1	6	ug/L	07/02/90
Beryllium	EPA200.7/SW6010	1	<1	ug/L	07/02/90
Calcium	EPA200.7/SW6010	50	18600	ug/L	07/02/90
Cadmium	EPA200.7/SW6010	1	<1	ug/L	07/02/90
Cobalt	EPA200.7/SW6010	4	<4	ug/L	07/02/90
Chromium	EPA200.7/SW6010	3	<3	ug/L	07/02/90
Copper	EPA200.7/SW6010	3	<3	ug/L	07/02/90
Dissolved Organic Carbon	EPA415.2	1.0	1.0	mg/L	07/03/90
Fluoride	EPA340.2	0.05	0.07	mg/L	06/25/90
Iron	EPA200.7/SW6010	20	146	ug/L	07/02/90
Mercury	EPA245.1/SW7470	0.2	<0.2	ug/L	06/29/90
Chloride	EPA300.0	1.0	3.1	mg/L	06/18/90
Sulfate	EPA300.0	1.0	3.6	mg/L	06/18/90
Potassium	EPA200.7/SW6010	350	1600	ug/L	07/02/90
Magnesium	EPA200.7/SW6010	24	9480	ug/L	07/02/90
Manganese	EPA200.7/SW6010	1	6	ug/L	07/02/90
Sodium	EPA200.7/SW6010	50	8560	ug/L	07/02/90
Nickel	EPA200.7/SW6010	6	<6	ug/L	07/02/90
Lead	EPA239.2/SW7421	0.8	1.0	ug/L	06/26/90
pH	EPA150.1	----	7.95	units	06/15/90
Antimony	EPA200.7/SW6010	10	<10	ug/L	07/02/90
Selenium	EPA270.2/SW7740	0.8	<0.8	ug/L	06/26/90
Total Dissolved Solids	EPA160.1	3	138	mg/L	06/21/90
Thallium	EPA279.2/SW7841	0.6	<0.6	ug/L	06/25/90
Total Organic Carbon	EPA415.2	1.0	1.1	mg/L	07/03/90
Total Organic Halogen as CL-	SW9020	5.0	26	ug/L	06/27/90
Vanadium	EPA200.7/SW6010	3	11	ug/L	07/02/90
Zinc	EPA200.7/SW6010	3	157	ug/L	07/02/90

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

Reviewed by: Hawley

INRPRPT(v900202)

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REPORT OF ANALYTICAL RESULTS

Date: 07/17/90
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Client: CH2M HILL/RDD
P.O. BOX 492478
REDDING, CA 96049

Atten: MR. MIKE SMITH

Project Number: RDD28631.AO.30
BLM STATELINE DUMP
Laboratory Number: 26816
Date Received: 06/15/90

Sample Description: MW-3
Laboratory Sample Number: 26816002 Date Collected: 06/14/90 Matrix: WATER

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Silver	EPA200.7/SW6010	3	<3	ug/L	07/02/90
Aluminum	EPA200.7/SW6010	8	20	ug/L	07/02/90
Arsenic	EPA206.2/SW7060	0.5	1.0	ug/L	06/26/90
Barium	EPA200.7/SW6010	1	13	ug/L	07/02/90
Beryllium	EPA200.7/SW6010	1	<1	ug/L	07/02/90
Calcium	EPA200.7/SW6010	50	18300	ug/L	07/02/90
Cadmium	EPA200.7/SW6010	1	<1	ug/L	07/02/90
Cobalt	EPA200.7/SW6010	4	<4	ug/L	07/02/90
Chromium	EPA200.7/SW6010	3	<3	ug/L	07/02/90
Copper	EPA200.7/SW6010	3	<3	ug/L	07/02/90
Dissolved Organic Carbon	EPA415.2	1.0	1.5	mg/L	07/03/90
Fluoride	EPA340.2	0.05	0.09	mg/L	06/25/90
Iron	EPA200.7/SW6010	20	23	ug/L	07/02/90
Mercury	EPA245.1/SW7470	0.2	<0.2	ug/L	06/29/90
Chloride	EPA300.0	1.0	14.7	mg/L	06/18/90
Sulfate	EPA300.0	1.0	5.6	mg/L	06/18/90
Potassium	EPA200.7/SW6010	350	2200	ug/L	07/02/90
Magnesium	EPA200.7/SW6010	24	9790	ug/L	07/02/90
Manganese	EPA200.7/SW6010	1	4	ug/L	07/02/90
Sodium	EPA200.7/SW6010	50	16500	ug/L	07/02/90
Nickel	EPA200.7/SW6010	6	<6	ug/L	07/02/90
Lead	EPA239.2/SW7421	0.8	2.9	ug/L	06/26/90
pH	EPA150.1	----	8.04	units	06/15/90
Antimony	EPA200.7/SW6010	10	<10	ug/L	07/02/90
Selenium	EPA270.2/SW7740	0.8	<0.8	ug/L	06/26/90
Total Dissolved Solids	EPA160.1	3	156	mg/L	06/21/90
Thallium	EPA279.2/SW7841	0.6	<0.6	ug/L	06/25/90
Total Organic Carbon	EPA415.2	1.0	1.1	mg/L	07/03/90
Total Organic Halogen as CL-	SW9020	5.0	28	ug/L	06/28/90
Vanadium	EPA200.7/SW6010	3	11	ug/L	07/02/90
Zinc	EPA200.7/SW6010	3	391	ug/L	07/02/90

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

Reviewed by: Hawley

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REPORT OF ANALYTICAL RESULTS

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Client: CH2M HILL/RDD
P.O. BOX 492478
REDDING, CA 96049

Atten: MR. MIKE SMITH

Project Number: RDD28631.AO.30
BLM STATELINE DUMP
Laboratory Number: 26816
Date Received: 06/15/90

Sample Description: MW-13
Laboratory Sample Number: 26816003 Date Collected: 06/14/90 Matrix: WATER

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Silver	EPA200.7/SW6010	3	<3	ug/L	07/02/90
Aluminum	EPA200.7/SW6010	8	20	ug/L	07/02/90
Arsenic	EPA206.2/SW7060	0.5	1.0	ug/L	06/26/90
Barium	EPA200.7/SW6010	1	13	ug/L	07/02/90
Beryllium	EPA200.7/SW6010	1	<1	ug/L	07/02/90
Calcium	EPA200.7/SW6010	50	18200	ug/L	07/02/90
Cadmium	EPA200.7/SW6010	1	<1	ug/L	07/02/90
Cobalt	EPA200.7/SW6010	4	<4	ug/L	07/02/90
Chromium	EPA200.7/SW6010	3	<3	ug/L	07/02/90
Copper	EPA200.7/SW6010	3	<3	ug/L	07/02/90
Dissolved Organic Carbon	EPA415.2	1.0	1.1	ug/L	07/02/90
Fluoride	EPA340.2	0.05	0.10	mg/L	07/03/90
Iron	EPA200.7/SW6010	20	22	mg/L	06/25/90
Mercury	EPA245.1/SW7470	0.2	<0.2	ug/L	07/02/90
Chloride	EPA300.0	1.0	14.6	ug/L	06/29/90
Sulfate	EPA300.0	1.0	5.5	mg/L	06/18/90
Potassium	EPA200.7/SW6010	350	1900	mg/L	06/18/90
Magnesium	EPA200.7/SW6010	24	9750	ug/L	07/02/90
Manganese	EPA200.7/SW6010	1	4	ug/L	07/02/90
Sodium	EPA200.7/SW6010	50	16400	ug/L	07/02/90
Nickel	EPA200.7/SW6010	6	<6	ug/L	07/02/90
Lead	EPA239.2/SW7421	0.8	1.2	ug/L	07/02/90
pH	EPA150.1	----	8.04	ug/L	06/26/90
Antimony	EPA200.7/SW6010	10	<10	units	06/15/90
Selenium	EPA270.2/SW7740	0.8	<0.8	ug/L	07/02/90
Total Dissolved Solids	EPA160.1	3	160	ug/L	06/26/90
Thallium	EPA279.2/SW7841	0.6	<0.6	mg/L	06/21/90
Total Organic Carbon	EPA415.2	1.0	1.2	ug/L	06/25/90
Total Organic Halogen as CL-	SW9020	5.0	12	mg/L	07/03/90
Vanadium	EPA200.7/SW6010	3	10	ug/L	06/27/90
Zinc	EPA200.7/SW6010	3	389	ug/L	07/02/90

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

Reviewed by: J Hawley

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REPORT OF ANALYTICAL RESULTS

Date: 07/17/90
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Client: CH2M HILL/RDD
P.O. BOX 492478
REDDING, CA 96049

Atten: MR. MIKE SMITH

Project Number: RDD28631.A0
BLM STATELINE DUMP
Laboratory Number: 26811
Date Received: 06/15/90

Sample Description: MW-4
Laboratory Sample Number: 26811001 Date Collected: 06/13/90 Matrix: WATER

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Silver	EPA200.7/SW6010	3	<3	ug/L	06/29/90
Aluminum	EPA200.7/SW6010	8	<8	ug/L	06/29/90
Arsenic	EPA206.2/SW7060	0.5	0.8	ug/L	06/26/90
Barium	EPA200.7/SW6010	1	3	ug/L	06/29/90
Beryllium	EPA200.7/SW6010	1	<1	ug/L	06/29/90
Calcium	EPA200.7/SW6010	50	20700	ug/L	06/29/90
Cadmium	EPA200.7/SW6010	1	<1	ug/L	06/29/90
Cobalt	EPA200.7/SW6010	4	<4	ug/L	06/29/90
Chromium	EPA200.7/SW6010	3	<3	ug/L	06/29/90
Copper	EPA200.7/SW6010	3	5	ug/L	06/29/90
Dissolved Organic Carbon	EPA415.2	1.0	1.4	mg/L	07/03/90
Fluoride	EPA340.2	0.05	0.08	mg/L	06/25/90
Iron	EPA200.7/SW6010	20	27	ug/L	06/29/90
Mercury	EPA245.1/SW7470	0.2	<0.2	ug/L	06/29/90
Chloride	EPA300.0	1.0	4.2	mg/L	06/15/90
Sulfate	EPA300.0	1.0	4.4	mg/L	06/15/90
Potassium	EPA200.7/SW6010	350	2100	ug/L	06/29/90
Magnesium	EPA200.7/SW6010	24	11000	ug/L	06/29/90
Manganese	EPA200.7/SW6010	1	10	ug/L	06/29/90
Sodium	EPA200.7/SW6010	50	8770	ug/L	06/29/90
Nickel	EPA200.7/SW6010	6	<6	ug/L	06/29/90
Lead	EPA239.2/SW7421	0.8	4.1	ug/L	06/22/90
pH	EPA150.1	----	7.96	units	06/15/90
Antimony	EPA200.7/SW6010	10	<10	ug/L	06/29/90
Selenium	EPA270.2/SW7740	0.8	<0.8	ug/L	06/26/90
Total Dissolved Solids	EPA160.1	3	167	mg/L	06/18/90
Thallium	EPA279.2/SW7841	0.6	<0.6	ug/L	06/25/90
Total Organic Carbon	EPA415.2	1.0	1.1	mg/L	07/03/90
Total Organic Halogen as CL-	SW9020	5.0	<5.0	ug/L	06/28/90
Vanadium	EPA200.7/SW6010	3	11	ug/L	06/29/90
Zinc	EPA200.7/SW6010	3	472	ug/L	06/29/90

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

Reviewed by: Hawley

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REPORT OF ANALYTICAL RESULTS

Date: 07/17/90
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Client: CH2M HILL/RDD
P.O. BOX 492478
REDDING, CA 96049

Atten: MR. MIKE SMITH

Project Number: RDD28631.AO.30
BLM STATELINE DUMP
Laboratory Number: 26816
Date Received: 06/15/90

Sample Description: MW-99
Laboratory Sample Number: 26816005 Date Collected: 06/14/90 Matrix: WATER

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Silver	EPA200.7/SW6010	3	3	ug/L	07/02/90
Aluminum	EPA200.7/SW6010	8	15	ug/L	07/02/90
Arsenic	EPA206.2/SW7060	0.5	<0.5	ug/L	06/26/90
Barium	EPA200.7/SW6010	1	<1	ug/L	07/02/90
Beryllium	EPA200.7/SW6010	1	<1	ug/L	07/02/90
Calcium	EPA200.7/SW6010	50	129	ug/L	07/02/90
Cadmium	EPA200.7/SW6010	1	<1	ug/L	07/02/90
Cobalt	EPA200.7/SW6010	4	<4	ug/L	07/02/90
Chromium	EPA200.7/SW6010	3	<3	ug/L	07/02/90
Copper	EPA200.7/SW6010	3	3	ug/L	07/02/90
Dissolved Organic Carbon	EPA415.2	1.0	<1.0	mg/L	07/03/90
Fluoride	EPA340.2	0.05	<0.05	mg/L	06/25/90
Iron	EPA200.7/SW6010	20	26	ug/L	07/02/90
Mercury	EPA245.1/SW7470	0.2	<0.2	ug/L	06/29/90
Chloride	EPA300.0	1.0	<1.0	mg/L	06/18/90
Sulfate	EPA300.0	1.0	<1.0	mg/L	06/18/90
Potassium	EPA200.7/SW6010	350	<350	ug/L	07/02/90
Magnesium	EPA200.7/SW6010	24	<24	ug/L	07/02/90
Manganese	EPA200.7/SW6010	1	1	ug/L	07/02/90
Sodium	EPA200.7/SW6010	50	141	ug/L	07/02/90
Nickel	EPA200.7/SW6010	6	<6	ug/L	07/02/90
Lead	EPA239.2/SW7421	0.8	<0.8	ug/L	06/26/90
pH	EPA150.1	----	6.00	units	06/15/90
Antimony	EPA200.7/SW6010	10	<10	ug/L	07/02/90
Selenium	EPA270.2/SW7740	0.8	<0.8	ug/L	06/26/90
Total Dissolved Solids	EPA160.1	3	<3	mg/L	06/21/90
Thallium	EPA279.2/SW7841	0.6	<0.6	ug/L	06/25/90
Total Organic Carbon	EPA415.2	1.0	<1.0	mg/L	07/03/90
Total Organic Halogen as CL-	SW9020	5.0	35	ug/L	06/27/90
Vanadium	EPA200.7/SW6010	3	<3	ug/L	07/02/90
Zinc	EPA200.7/SW6010	3	<3	ug/L	07/02/90

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

Reviewed by: Hawley

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REPORT OF ANALYTICAL RESULTS

Date: 07/17/90
Page: 7 of 7

Client: CH2M HILL/RDD
P.O. BOX 492478
REDDING, CA 96049

Atten: MR. MIKE SMITH

Project Number: RDD28631.AO.30
BLM STATELINE DUMP
Laboratory Number: 26816
Date Received: 06/15/90

Sample Description: METHOD BLANK FOR WATER
Laboratory Sample Number: 26816ZW1 Date Collected: 06/15/90 Matrix: WATER BLANK

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Silver	EPA200.7/SW6010	3	<3	ug/L	07/02/90
Aluminum	EPA200.7/SW6010	8	11	ug/L	07/02/90
Arsenic	EPA206.2/SW7060	0.5	<0.5	ug/L	06/26/90
Barium	EPA200.7/SW6010	1	<1	ug/L	07/02/90
Beryllium	EPA200.7/SW6010	1	<1	ug/L	06/27/90
Calcium	EPA200.7/SW6010	50	71	ug/L	06/27/90
Cadmium	EPA200.7/SW6010	1	<1	ug/L	06/27/90
Cobalt	EPA200.7/SW6010	4	<4	ug/L	06/27/90
Chromium	EPA200.7/SW6010	3	<3	ug/L	06/27/90
Copper	EPA200.7/SW6010	3	<3	ug/L	06/27/90
Dissolved Organic Carbon	EPA415.2	1.0	<1.0	mg/L	07/03/90
Fluoride	EPA340.2	0.05	<0.05	mg/L	06/25/90
Iron	EPA200.7/SW6010	20	<20	ug/L	06/27/90
Mercury	EPA245.1/SW7470	0.2	<0.2	ug/L	06/29/90
Chloride	EPA300.0	1.0	<1.0	mg/L	06/18/90
Sulfate	EPA300.0	1.0	<1.0	mg/L	06/18/90
Potassium	EPA200.7/SW6010	350	<350	ug/L	06/27/90
Magnesium	EPA200.7/SW6010	24	<24	ug/L	06/27/90
Manganese	EPA200.7/SW6010	1	<1	ug/L	06/27/90
Sodium	EPA200.7/SW6010	50	93	ug/L	06/27/90
Nickel	EPA200.7/SW6010	6	<6	ug/L	06/27/90
Lead	EPA239.2/SW7421	0.8	0.9	ug/L	06/26/90
Antimony	EPA200.7/SW6010	10	<10	ug/L	06/27/90
Selenium	EPA270.2/SW7740	0.8	<0.8	ug/L	06/26/90
Thallium	EPA279.2/SW7841	0.6	<0.6	ug/L	06/25/90
Total Organic Carbon	EPA415.2	1.0	<1.0	mg/L	07/03/90
Vanadium	EPA200.7/SW6010	3	<3	ug/L	06/27/90
Zinc	EPA200.7/SW6010	3	17	ug/L	07/02/90

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

Reviewed by: J. Hawley

INRPRPT(v900202)

000009

CASE NARRATIVE FOR VOLATILE GAS CHROMATOGRAPHY SAMPLES

LABORATORY: CH2M HILL
CLIENT : B.L.M.
CASE NO : N/A
CONTRACT NO.: N/A
LAB ID : 26816
SDG # : N/A

I. RECEIPT

A. Date: June 15, 1990

B.

LAB ID	CLIENT ID	SAMPLE MATRIX	DATE SAMPLED	EXTRACTION DATE	ANALYSIS DATE
26816001	MW-2	Water	6/15/90	N/A	6/22,25/90
26816002	MW-3	Water	6/14/90	N/A	6/22,25/90
26816003	MW-13	Water	6/14/90	N/A	6/22,25/90
26816004	OS-12	Water	6/14/90	N/A	6/22,25/90
26816005	MW-99	Water	6/14/90	N/A	6/22,25/90
26816006	OS-99	Water	6/14/90	N/A	6/22,25/90

C. Documentation Exceptions : None encountered.

II. EXTRACTION

A. Holding Times: Medium level protocol was not performed, therefore, holding times are not applicable.

B. Extraction Exceptions : Not applicable.

III. ANALYSIS

A. Holding Times: All holding times were met.

B. Analytical Exceptions : None encountered.

IV. QUALITY CONTROL

A. Method Blank : A method blank is a laboratory generated sample used to determine the degree to which laboratory operations may cause false positive results for these samples. No target parameters were detected in the method blanks associated with these samples.

B. Surrogate Recoveries : Met acceptable QC criteria.

C. Matrix Spike Results: Not applicable.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature. Diskette deliverables have not be provided for this data package.

Greg Jordan 7/5/90

Greg Jordan **Date**
GC Section Supervisor

WLK 7/5/90

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CASE NARRATIVE FOR VOLATILE GAS CHROMATOGRAPHY SAMPLES

LABORATORY: CH2M HILL

CASE NO : N/A

LAB ID : 26811

CLIENT : B.L.M.

CONTRACT NO.: N/A

SDG # : N/A

I. RECEIPT

A. Date: June 15, 1990

B.

LAB ID	CLIENT ID	SAMPLE MATRIX	DATE SAMPLED	EXTRACTION DATE	ANALYSIS DATE
26811001	MW-4	Water	6/13/90	N/A	6/22,25/90
26811002	MW-1	Water	6/13/90	N/A	6/22,25/90
26811003	S-6	Soil	6/13/90	N/A	7/4/90

C. Documentation Exceptions : None encountered.

II. EXTRACTION

A. Holding Times: Medium level protocol was not performed, therefore, holding times are not applicable.

B. Extraction Exceptions : Not applicable.

III. ANALYSIS

A. Holding Times: Holding time for sample 26811-3 (S-6) was exceeded.

B. Analytical Exceptions : None encountered.

IV. QUALITY CONTROL

A. Method Blank : A method blank is a laboratory generated sample used to determine the degree to which laboratory operations may cause false positive results for these samples. No target parameters were detected in the method blanks associated with these samples.

B. Surrogate Recoveries : All met acceptable QC criteria.

C. Matrix Spike Results: Not applicable.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature. Diskette deliverables have not be provided for this data package.

Warren Le Kidd for Greg Jordan 7/14/90

Greg Jordan **Date**
GC Section Supervisor

Report of Analytical Data - Purgeable Halocarbons

Client: NA
Project: NA
Proj No: NA
Method: EPA 601
Matrix: Water
Sampler: NA

Laboratory: CH2M Hill/LRD
Lab Sample ID: Method Blank
% Moisture: 100.0
Dilution Factor: 1
Instrument ID: 3700

Date Sampled: NA
Date Received: NA
Date Extracted: NA
Date Analyzed: 06-25-90
Analyst: J.W.
Date Reported: 07-05-90

Client Sample ID/Description: NA

CAS Number	Compound	Reporting Limit	Sample Result	Confirmation Result	Reporting Units
74-87-3	Chloromethane	1.0	U	NR	ug/L
74-83-9	Bromomethane	1.0	U	NR	ug/L
75-01-4	Vinyl chloride	1.0	U	NR	ug/L
75-00-3	Chloroethane	1.0	U	NR	ug/L
75-09-2	Dichloromethane	1.0	U	NR	ug/L
75-69-4	Trichlorofluoromethane	1.0	U	NR	ug/L
75-35-4	1,1-Dichloroethene	1.0	U	NR	ug/L
75-34-3	1,1-Dichloroethane	1.0	U	NR	ug/L
156-60-5	trans-1,2-Dichloroethene	1.0	U	NR	ug/L
67-66-3	Chloroform	1.0	U	NR	ug/L
107-06-2	1,2-Dichloroethane	1.0	U	NR	ug/L
71-55-6	1,1,1-Trichloroethane	1.0	U	NR	ug/L
56-23-5	Carbon tetrachloride	1.0	U	NR	ug/L
75-27-4	Bromodichloromethane	1.0	U	NR	ug/L
78-87-5	1,2-Dichloropropane	1.0	U	NR	ug/L
10061-01-5	cis-1,3-Dichloropropene	1.0	U	NR	ug/L
79-01-6	Trichloroethene	1.0	U	NR	ug/L
124-48-1	Dibromochloromethane	1.0	U	NR	ug/L
79-00-5	1,1,2-Trichloroethane	1.0	U	NR	ug/L
10061-02-6	trans-1,3-Dichloropropene	1.0	U	NR	ug/L
75-25-2	Bromoform	1.0	U	NR	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	NR	ug/L
127-18-4	Tetrachloroethene	1.0	U	NR	ug/L
108-90-7	Chlorobenzene	1.0	U	NR	ug/L
541-73-1	1,3-Dichlorobenzene	1.0	U	NR	ug/L
95-50-1	1,2-Dichlorobenzene	1.0	U	NR	ug/L
106-46-7	1,4-Dichlorobenzene	1.0	U	NR	ug/L
74-97-5	Bromochloromethane-SS		115		% rec

U = Compound analyzed for but not detected.
SS = Surrogate Standard reported as percent recovery.
NR = Not Required. This sample was analyzed by a modified EPA 601 method.

Reviewed by: Greg Fowler

Report of Analytical Data - Purgeable Aromatics

Client: NA
Project: NA
Proj No: NA
Method: EPA 602
Matrix: Water
Sampler: NA

Laboratory: CH2M Hill/LRD
Lab Sample ID: Method Blank
% Moisture: 100.0
Dilution Factor: 1
Instrument ID: Tracor

Date Sampled: NA
Date Received: NA
Date Extracted: NA
Date Analyzed: 06-21-90
Analyst: G.J.
Date Reported: 07-05-90

Client Sample ID/Description: NA

CAS Number	Compound	Reporting Limit	Sample Result	Confirmation Result	Reporting Units
108-90-7	Chlorobenzene	1.0	U	NR	ug/L
541-73-1	1,3-Dichlorobenzene	1.0	U	NR	ug/L
95-50-1	1,2-Dichlorobenzene	1.0	U	NR	ug/L
106-46-7	1,4-Dichlorobenzene	1.0	U	NR	ug/L
1634-04-4	tert-Butyl methyl ether	1.0	U	NR	ug/L
71-43-2	Benzene	1.0	U	NR	ug/L
108-88-3	Toluene	1.0	U	NR	ug/L
100-41-4	Ethylbenzene	1.0	U	NR	ug/L
1330-20-7	Total xylenes	1.0	U	NR	ug/L
	1,4-Chlorotoluene-SS		95		% rec

U = Compound analyzed for but not detected.
SS = Surrogate Standard reported as percent recovery.
NR = Not Required. This sample was analyzed by a modified EPA 602 method.

Reviewed by: Greg Jordan

Report of Analytical Data - Purgeable Halocarbons

Client:	NA	Laboratory:	CH2M Hill/LRD	Date Sampled:	NA
Project:	NA	Lab Sample ID:	Method Blank	Date Received:	NA
Proj No:	NA	% Moisture:	100.0	Date Extracted:	NA
Method:	EPA 601	Dilution Factor:	1	Date Analyzed:	06-25-90
Matrix:	Water	Instrument ID:	3700	Analyst:	J.W.
Sampler:	NA			Date Reported:	07-16-90

Client Sample ID/Description: NA

CAS Number	Compound	Reporting Limit	Sample Result	Confirmation Result	Reporting Units
74-87-3	Chloromethane	1.0	U	NR	ug/L
74-83-9	Bromomethane	1.0	U	NR	ug/L
75-01-4	Vinyl chloride	1.0	U	NR	ug/L
75-00-3	Chloroethane	1.0	U	NR	ug/L
75-09-2	Dichloromethane	1.0	U	NR	ug/L
75-69-4	Trichlorofluoromethane	1.0	U	NR	ug/L
75-35-4	1,1-Dichloroethene	1.0	U	NR	ug/L
75-34-3	1,1-Dichloroethane	1.0	U	NR	ug/L
156-60-5	trans-1,2-Dichloroethene	1.0	U	NR	ug/L
67-66-3	Chloroform	1.0	U	NR	ug/L
107-06-2	1,2-Dichloroethane	1.0	U	NR	ug/L
71-55-6	1,1,1-Trichloroethane	1.0	U	NR	ug/L
56-23-5	Carbon tetrachloride	1.0	U	NR	ug/L
75-27-4	Bromodichloromethane	1.0	U	NR	ug/L
78-87-5	1,2-Dichloropropane	1.0	U	NR	ug/L
10061-01-5	cis-1,3-Dichloropropene	1.0	U	NR	ug/L
79-01-6	Trichloroethene	1.0	U	NR	ug/L
124-48-1	Dibromochloromethane	1.0	U	NR	ug/L
79-00-5	1,1,2-Trichloroethane	1.0	U	NR	ug/L
10061-02-6	trans-1,3-Dichloropropene	1.0	U	NR	ug/L
75-25-2	Bromoform	1.0	U	NR	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	NR	ug/L
127-18-4	Tetrachloroethene	1.0	U	NR	ug/L
108-90-7	Chlorobenzene	1.0	U	NR	ug/L
541-73-1	1,3-Dichlorobenzene	1.0	U	NR	ug/L
95-50-1	1,2-Dichlorobenzene	1.0	U	NR	ug/L
106-46-7	1,4-Dichlorobenzene	1.0	U	NR	ug/L
74-97-5	Bromochloromethane-SS		115		% rec

U = Compound analyzed for but not detected.
SS = Surrogate Standard reported as percent recovery.
NR = Not Required. This sample was analyzed by a modified EPA 601 method.

Reviewed by: WLK

Report of Analytical Data - Purgeable Aromatics

Client: NA
Project: NA
Proj No: NA
Method: EPA 602
Matrix: Water
Sampler: NA

Laboratory: CH2M Hill/LRD
Lab Sample ID: Method Blank
% Moisture: 100.0
Dilution Factor: 1
Instrument ID: Tracor

Date Sampled: NA
Date Received: NA
Date Extracted: NA
Date Analyzed: 06/21/90
Analyst: G.J.
Date Reported: 07/16/90

Client Sample ID/Description: NA

CAS Number	Compound	Reporting Limit	Sample Result	Confirmation Result	Reporting Units
1634-04-4	tert-Butyl methyl ether	1.0	U	NR	ug/L
71-43-2	Benzene	1.0	U	NR	ug/L
108-88-3	Toluene	1.0	U	NR	ug/L
100-41-4	Ethylbenzene	1.0	U	NR	ug/L
1330-20-7	Total xylenes	1.0	U	NR	ug/L
	1,4-Chlorotoluene-SS		95		% rec

U = Compound analyzed for but not detected.
SS = Surrogate Standard reported as percent recovery.
NR = Not Required. This sample was analyzed by a modified EPA 602 method.

Reviewed by: WLK

Report of Analytical Data - Purgeable Halocarbons

Client: B.L.M.
Project: BLM-Stateline Dump
Proj No: RDD 28631.A0
Method: EPA 601
Matrix: Water
Sampler: J. Morris

Laboratory: CH2M Hill/LRD
Lab Sample ID: 26811-2
% Moisture: 100.0
Dilution Factor: 1
Instrument ID: 3700

Date Sampled: 06-13-90
Date Received: 06-15-90
Date Extracted: NA
Date Analyzed: 06-25-90
Analyst: J.W.
Date Reported: 07-16-90

Client Sample ID/Description: MW-1

CAS Number	Compound	Reporting Limit	Sample Result	Confirmation Result	Reporting Units
74-87-3	Chloromethane	1.0	U	NR	ug/L
74-83-9	Bromomethane	1.0	U	NR	ug/L
75-01-4	Vinyl chloride	1.0	U	NR	ug/L
75-00-3	Chloroethane	1.0	U	NR	ug/L
75-09-2	Dichloromethane	1.0	U	NR	ug/L
75-69-4	Trichlorofluoromethane	1.0	U	NR	ug/L
75-35-4	1,1-Dichloroethene	1.0	U	NR	ug/L
75-34-3	1,1-Dichloroethane	1.0	U	NR	ug/L
156-60-5	trans-1,2-Dichloroethene	1.0	U	NR	ug/L
67-66-3	Chloroform	1.0	U	NR	ug/L
107-06-2	1,2-Dichloroethane	1.0	U	NR	ug/L
71-55-6	1,1,1-Trichloroethane	1.0	U	NR	ug/L
56-23-5	Carbon tetrachloride	1.0	U	NR	ug/L
75-27-4	Bromodichloromethane	1.0	U	NR	ug/L
78-87-5	1,2-Dichloropropane	1.0	U	NR	ug/L
10061-01-5	cis-1,3-Dichloropropene	1.0	U	NR	ug/L
79-01-6	Trichloroethene	1.0	U	NR	ug/L
124-48-1	Dibromochloromethane	1.0	U	NR	ug/L
79-00-5	1,1,2-Trichloroethane	1.0	U	NR	ug/L
10061-02-6	trans-1,3-Dichloropropene	1.0	U	NR	ug/L
75-25-2	Bromoform	1.0	U	NR	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	NR	ug/L
127-18-4	Tetrachloroethene	1.0	U	NR	ug/L
108-90-7	Chlorobenzene	1.0	U	NR	ug/L
541-73-1	1,3-Dichlorobenzene	1.0	U	NR	ug/L
95-50-1	1,2-Dichlorobenzene	1.0	U	NR	ug/L
106-46-7	1,4-Dichlorobenzene	1.0	U	NR	ug/L
74-97-5	Bromochloromethane-SS		82		% rec

U = Compound analyzed for but not detected.
SS = Surrogate Standard reported as percent recovery.
NR = Not Required. This sample was analyzed by a modified EPA 601 method.

Reviewed by: WLK

Report of Analytical Data - Purgeable Aromatics

Client: B.L.M.
Project: BLM-Stateline Dump
Proj No: RDD 28631.A0
Method: EPA 602
Matrix: Water
Sampler: J. Morris

Laboratory: CH2M Hill/LRD
Lab Sample ID: 26811-2
% Moisture: 100.0
Dilution Factor: 1
Instrument ID: Tracor

Date Sampled: 06-13-90
Date Received: 06-15-90
Date Extracted: NA
Date Analyzed: 06-22-90
Analyst: G.J.
Date Reported: 07-16-90

Client Sample ID/Description: MW-1

CAS Number	Compound	Reporting Limit	Sample Result	Confirmation Result	Reporting Units
1634-04-4	tert-Butyl methyl ether	1.0	U	NR	ug/L
71-43-2	Benzene	1.0	U	NR	ug/L
108-88-3	Toluene	1.0	U	NR	ug/L
100-41-4	Ethylbenzene	1.0	U	NR	ug/L
1330-20-7	Total xylenes	1.0	U	NR	ug/L
	1,4-Chlorotoluene-SS		88		% rec

U = Compound analyzed for but not detected.
SS = Surrogate Standard reported as percent recovery.
NR = Not Required. This sample was analyzed by a modified EPA 602 method.

Reviewed by: WLK

Report of Analytical Data - Purgeable Halocarbons

Client:	B.L.M.	Laboratory:	CH2M Hill/LRD	Date Sampled:	06-15-90
Project:	Stateline Dump	Lab Sample ID:	26816-1	Date Received:	06-15-90
Proj No:	RDD 28631.A0.30	% Moisture:	100.0	Date Extracted:	NA
Method:	EPA 601	Dilution Factor:	1	Date Analyzed:	06-25-90
Matrix:	Water	Instrument ID:	3700	Analyst:	J.W.
Sampler:	Client			Date Reported:	07-05-90

Client Sample ID/Description: MW-2

CAS Number	Compound	Reporting Limit	Sample Result	Confirmation Result	Reporting Units
74-87-3	Chloromethane	1.0	U	NR	ug/L
74-83-9	Bromomethane	1.0	U	NR	ug/L
75-01-4	Vinyl chloride	1.0	U	NR	ug/L
75-00-3	Chloroethane	1.0	U	NR	ug/L
75-09-2	Dichloromethane	1.0	U	NR	ug/L
75-69-4	Trichlorofluoromethane	1.0	U	NR	ug/L
75-35-4	1,1-Dichloroethene	1.0	U	NR	ug/L
75-34-3	1,1-Dichloroethane	1.0	U	NR	ug/L
156-60-5	trans-1,2-Dichloroethene	1.0	U	NR	ug/L
67-66-3	Chloroform	1.0	U	NR	ug/L
107-06-2	1,2-Dichloroethane	1.0	U	NR	ug/L
71-55-6	1,1,1-Trichloroethane	1.0	U	NR	ug/L
56-23-5	Carbon tetrachloride	1.0	U	NR	ug/L
75-27-4	Bromodichloromethane	1.0	U	NR	ug/L
78-87-5	1,2-Dichloropropane	1.0	U	NR	ug/L
10061-01-5	cis-1,3-Dichloropropene	1.0	U	NR	ug/L
79-01-6	Trichloroethene	1.0	U	NR	ug/L
124-48-1	Dibromochloromethane	1.0	U	NR	ug/L
79-00-5	1,1,2-Trichloroethane	1.0	U	NR	ug/L
10061-02-6	trans-1,3-Dichloropropene	1.0	U	NR	ug/L
75-25-2	Bromoform	1.0	U	NR	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	NR	ug/L
127-18-4	Tetrachloroethene	1.0	U	NR	ug/L
108-90-7	Chlorobenzene	1.0	U	NR	ug/L
541-73-1	1,3-Dichlorobenzene	1.0	U	NR	ug/L
95-50-1	1,2-Dichlorobenzene	1.0	U	NR	ug/L
106-46-7	1,4-Dichlorobenzene	1.0	U	NR	ug/L
74-97-5	Bromochloromethane-SS		87		% rec

U = Compound analyzed for but not detected.
SS = Surrogate Standard reported as percent recovery.
NR = Not Required. This sample was analyzed by a modified EPA 601 method.

Reviewed by: Greg Jordan

Report of Analytical Data - Purgeable Aromatics

Client:	B.L.M.	Laboratory:	CH2M Hill/LRD	Date Sampled:	06-15-90
Project:	Stateline Dump	Lab Sample ID:	26816-1	Date Received:	06-15-90
Proj No:	RDD 28631.A0.30	% Moisture:	100.0	Date Extracted:	NA
Method:	EPA 602	Dilution Factor:	1	Date Analyzed:	06-22-90
Matrix:	Water	Instrument ID:	Tracor	Analyst:	G.J.
Sampler:	Client			Date Reported:	07-05-90

Client Sample ID/Description: MW-2

CAS Number	Compound	Reporting Limit	Sample Result	Confirmation Result	Reporting Units
108-90-7	Chlorobenzene	1.0	U	NR	ug/L
541-73-1	1,3-Dichlorobenzene	1.0	U	NR	ug/L
95-50-1	1,2-Dichlorobenzene	1.0	U	NR	ug/L
106-46-7	1,4-Dichlorobenzene	1.0	U	NR	ug/L
1634-04-4	tert-Butyl methyl ether	1.0	U	NR	ug/L
71-43-2	Benzene	1.0	U	NR	ug/L
108-88-3	Toluene	1.0	U	NR	ug/L
100-41-4	Ethylbenzene	1.0	U	NR	ug/L
1330-20-7	Total xylenes	1.0	U	NR	ug/L
	1,4-Chlorotoluene-SS		92		% rec

U = Compound analyzed for but not detected.
SS = Surrogate Standard reported as percent recovery.
NR = Not Required. This sample was analyzed by a modified EPA 602 method.

Reviewed by: Greg Jordan

Report of Analytical Data - Purgeable Halocarbons

Client: B.L.M.
Project: Stateline Dump
Proj No: RDD 28631.A0.30
Method: EPA 601
Matrix: Water
Sampler: Client

Laboratory: CH2M Hill/LRD
Lab Sample ID: 26816-2
% Moisture: 100.0
Dilution Factor: 1
Instrument ID: 3700

Date Sampled: 06-14-90
Date Received: 06-15-90
Date Extracted: NA
Date Analyzed: 06-25-90
Analyst: J.W.
Date Reported: 07-05-90

Client Sample ID/Description: MW-3

CAS Number	Compound	Reporting Limit	Sample Result	Confirmation Result	Reporting Units
74-87-3	Chloromethane	1.0	U	NR	ug/L
74-83-9	Bromomethane	1.0	U	NR	ug/L
75-01-4	Vinyl chloride	1.0	U	NR	ug/L
75-00-3	Chloroethane	1.0	U	NR	ug/L
75-09-2	Dichloromethane	1.0	U	NR	ug/L
75-69-4	Trichlorofluoromethane	1.0	U	NR	ug/L
75-35-4	1,1-Dichloroethene	1.0	U	NR	ug/L
75-34-3	1,1-Dichloroethane	1.0	U	NR	ug/L
156-60-5	trans-1,2-Dichloroethene	1.0	U	NR	ug/L
67-66-3	Chloroform	1.0	U	NR	ug/L
107-06-2	1,2-Dichloroethane	1.0	U	NR	ug/L
71-55-6	1,1,1-Trichloroethane	1.0	U	NR	ug/L
56-23-5	Carbon tetrachloride	1.0	U	NR	ug/L
75-27-4	Bromodichloromethane	1.0	U	NR	ug/L
78-87-5	1,2-Dichloropropane	1.0	U	NR	ug/L
10061-01-5	cis-1,3-Dichloropropene	1.0	U	NR	ug/L
79-01-6	Trichloroethene	1.0	U	NR	ug/L
124-48-1	Dibromochloromethane	1.0	U	NR	ug/L
79-00-5	1,1,2-Trichloroethane	1.0	U	NR	ug/L
10061-02-6	trans-1,3-Dichloropropene	1.0	U	NR	ug/L
75-25-2	Bromoform	1.0	U	NR	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	NR	ug/L
127-18-4	Tetrachloroethene	1.0	U	NR	ug/L
108-90-7	Chlorobenzene	1.0	U	NR	ug/L
541-73-1	1,3-Dichlorobenzene	1.0	U	NR	ug/L
95-50-1	1,2-Dichlorobenzene	1.0	U	NR	ug/L
106-46-7	1,4-Dichlorobenzene	1.0	U	NR	ug/L
74-97-5	Bromochloromethane-SS		87		% rec

U = Compound analyzed for but not detected.
SS = Surrogate Standard reported as percent recovery.
NR = Not Required. This sample was analyzed by a modified EPA 601 method.

Reviewed by: Greg Jordan

Report of Analytical Data - Purgeable Aromatics

Client: B.L.M.
Project: Stateline Dump
Proj No: RDD 28631.A0.30
Method: EPA 602
Matrix: Water
Sampler: Client

Laboratory: CH2M Hill/LRD
Lab Sample ID: 26816-2
% Moisture: 100.0
Dilution Factor: 1
Instrument ID: Tracor

Date Sampled: 06-14-90
Date Received: 06-15-90
Date Extracted: NA
Date Analyzed: 06-22-90
Analyst: G.J.
Date Reported: 07-05-90

Client Sample ID/Description: MW-3

CAS Number	Compound	Reporting Limit	Sample Result	Confirmation Result	Reporting Units
108-90-7	Chlorobenzene	1.0	U	NR	ug/L
541-73-1	1,3-Dichlorobenzene	1.0	U	NR	ug/L
95-50-1	1,2-Dichlorobenzene	1.0	U	NR	ug/L
106-46-7	1,4-Dichlorobenzene	1.0	U	NR	ug/L
1634-04-4	tert-Butyl methyl ether	1.0	U	NR	ug/L
71-43-2	Benzene	1.0	U	NR	ug/L
108-88-3	Toluene	1.0	U	NR	ug/L
100-41-4	Ethylbenzene	1.0	U	NR	ug/L
1330-20-7	Total xylenes	1.0	U	NR	ug/L
	1,4-Chlorotoluene-SS		93		% rec

U = Compound analyzed for but not detected.
SS = Surrogate Standard reported as percent recovery.
NR = Not Required. This sample was analyzed by a modified EPA 602 method.

Reviewed by: Greg Jordan

Report of Analytical Data - Purgeable Halocarbons

Client: B.L.M.
Project: BLM-Stateline Dump
Proj No: RDD 28631.A0
Method: EPA 601
Matrix: Water
Sampler: J. Morris

Laboratory: CH2M Hill/LRD
Lab Sample ID: 26811-1
% Moisture: 100.0
Dilution Factor: 1
Instrument ID: 3700

Date Sampled: 06-13-90
Date Received: 06-15-90
Date Extracted: NA
Date Analyzed: 06-25-90
Analyst: J.W.
Date Reported: 07-16-90

Client Sample ID/Description: MW-4

CAS Number	Compound	Reporting Limit	Sample Result	Confirmation Result	Reporting Units
74-87-3	Chloromethane	1.0	U	NR	ug/L
74-83-9	Bromomethane	1.0	U	NR	ug/L
75-01-4	Vinyl chloride	1.0	U	NR	ug/L
75-00-3	Chloroethane	1.0	U	NR	ug/L
75-09-2	Dichloromethane	1.0	U	NR	ug/L
75-69-4	Trichlorofluoromethane	1.0	U	NR	ug/L
75-35-4	1,1-Dichloroethene	1.0	U	NR	ug/L
75-34-3	1,1-Dichloroethane	1.0	U	NR	ug/L
156-60-5	trans-1,2-Dichloroethene	1.0	U	NR	ug/L
67-66-3	Chloroform	1.0	U	NR	ug/L
107-06-2	1,2-Dichloroethane	1.0	U	NR	ug/L
71-55-6	1,1,1-Trichloroethane	1.0	U	NR	ug/L
56-23-5	Carbon tetrachloride	1.0	U	NR	ug/L
75-27-4	Bromodichloromethane	1.0	U	NR	ug/L
78-87-5	1,2-Dichloropropane	1.0	U	NR	ug/L
10061-01-5	cis-1,3-Dichloropropene	1.0	U	NR	ug/L
79-01-6	Trichloroethene	1.0	U	NR	ug/L
124-48-1	Dibromochloromethane	1.0	U	NR	ug/L
79-00-5	1,1,2-Trichloroethane	1.0	U	NR	ug/L
10061-02-6	trans-1,3-Dichloropropene	1.0	U	NR	ug/L
75-25-2	Bromoform	1.0	U	NR	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	NR	ug/L
127-18-4	Tetrachloroethene	1.0	U	NR	ug/L
108-90-7	Chlorobenzene	1.0	U	NR	ug/L
541-73-1	1,3-Dichlorobenzene	1.0	U	NR	ug/L
95-50-1	1,2-Dichlorobenzene	1.0	U	NR	ug/L
106-46-7	1,4-Dichlorobenzene	1.0	U	NR	ug/L
74-97-5	Bromochloromethane-SS		82		% rec

U = Compound analyzed for but not detected.
SS = Surrogate Standard reported as percent recovery.
NR = Not Required. This sample was analyzed by a modified EPA 601 method.

Reviewed by: WLK

Report of Analytical Data - Purgeable Aromatics

Client:	B.L.M.	Laboratory:	CH2M Hill/LRD	Date Sampled:	06-13-90
Project:	BLM-Stateline Dump	Lab Sample ID:	26811-1	Date Received:	06-15-90
Proj No:	RDD 28631.A0	% Moisture:	100.0	Date Extracted:	NA
Method:	EPA 602	Dilution Factor:	1	Date Analyzed:	06-22-90
Matrix:	Water	Instrument ID:	Tracor	Analyst:	G.J.
Sampler:	J. Morris			Date Reported:	07-16-90

Client Sample ID/Description: MW-4

CAS Number	Compound	Reporting Limit	Sample Result	Confirmation Result	Reporting Units
1634-04-4	tert-Butyl methyl ether	1.0	U	NR	ug/L
71-43-2	Benzene	1.0	U	NR	ug/L
108-88-3	Toluene	1.0	U	NR	ug/L
100-41-4	Ethylbenzene	1.0	U	NR	ug/L
1330-20-7	Total xylenes	1.0	U	NR	ug/L
	1,4-Chlorotoluene-SS		101		% rec

U = Compound analyzed for but not detected.
SS = Surrogate Standard reported as percent recovery.
NR = Not Required. This sample was analyzed by a modified EPA 602 method.

Reviewed by: WLK

Report of Analytical Data - Purgeable Halocarbons

Client: B.L.M.
Project: Stateline Dump
Proj No: RDD 28631.A0.30
Method: EPA 601
Matrix: Water
Sampler: Client

Laboratory: CH2M Hill/LRD
Lab Sample ID: 26816-3
% Moisture: 100.0
Dilution Factor: 1
Instrument ID: 3700

Date Sampled: 06-14-90
Date Received: 06-15-90
Date Extracted: NA
Date Analyzed: 06-25-90
Analyst: J.W.
Date Reported: 07-05-90

Client Sample ID/Description: MW-13

CAS Number	Compound	Reporting Limit	Sample Result	Confirmation Result	Reporting Units
74-87-3	Chloromethane	1.0	U	NR	ug/L
74-83-9	Bromomethane	1.0	U	NR	ug/L
75-01-4	Vinyl chloride	1.0	U	NR	ug/L
75-00-3	Chloroethane	1.0	U	NR	ug/L
75-09-2	Dichloromethane	1.0	U	NR	ug/L
75-69-4	Trichlorofluoromethane	1.0	U	NR	ug/L
75-35-4	1,1-Dichloroethene	1.0	U	NR	ug/L
75-34-3	1,1-Dichloroethane	1.0	U	NR	ug/L
156-60-5	trans-1,2-Dichloroethene	1.0	U	NR	ug/L
67-66-3	Chloroform	1.0	U	NR	ug/L
107-06-2	1,2-Dichloroethane	1.0	U	NR	ug/L
71-55-6	1,1,1-Trichloroethane	1.0	U	NR	ug/L
56-23-5	Carbon tetrachloride	1.0	U	NR	ug/L
75-27-4	Bromodichloromethane	1.0	U	NR	ug/L
78-87-5	1,2-Dichloropropane	1.0	U	NR	ug/L
10061-01-5	cis-1,3-Dichloropropene	1.0	U	NR	ug/L
79-01-6	Trichloroethene	1.0	U	NR	ug/L
124-48-1	Dibromochloromethane	1.0	U	NR	ug/L
79-00-5	1,1,2-Trichloroethane	1.0	U	NR	ug/L
10061-02-6	trans-1,3-Dichloropropene	1.0	U	NR	ug/L
75-25-2	Bromoform	1.0	U	NR	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	NR	ug/L
127-18-4	Tetrachloroethene	1.0	U	NR	ug/L
108-90-7	Chlorobenzene	1.0	U	NR	ug/L
541-73-1	1,3-Dichlorobenzene	1.0	U	NR	ug/L
95-50-1	1,2-Dichlorobenzene	1.0	U	NR	ug/L
106-46-7	1,4-Dichlorobenzene	1.0	U	NR	ug/L
74-97-5	Bromochloromethane-SS		82		% rec

U = Compound analyzed for but not detected.
SS = Surrogate Standard reported as percent recovery.
NR = Not Required. This sample was analyzed by a modified EPA 601 method.

Reviewed by: Greg Jordan

Report of Analytical Data - Purgeable Aromatics

Client: B.L.M.
Project: Stateline Dump
Proj No: RDD 28631.A0.30
Method: EPA 602
Matrix: Water
Sampler: Client

Laboratory: CH2M Hill/LRD
Lab Sample ID: 26816-3
% Moisture: 100.0
Dilution Factor: 1
Instrument ID: Tracor

Date Sampled: 06-14-90
Date Received: 06-15-90
Date Extracted: NA
Date Analyzed: 06-22-90
Analyst: G.J.
Date Reported: 07-05-90

Client Sample ID/Description: MW-13

CAS Number	Compound	Reporting Limit	Sample Result	Confirmation Result	Reporting Units
108-90-7	Chlorobenzene	1.0	U	NR	ug/L
541-73-1	1,3-Dichlorobenzene	1.0	U	NR	ug/L
95-50-1	1,2-Dichlorobenzene	1.0	U	NR	ug/L
106-46-7	1,4-Dichlorobenzene	1.0	U	NR	ug/L
1634-04-4	tert-Butyl methyl ether	1.0	U	NR	ug/L
71-43-2	Benzene	1.0	U	NR	ug/L
108-88-3	Toluene	1.0	U	NR	ug/L
100-41-4	Ethylbenzene	1.0	U	NR	ug/L
1330-20-7	Total xylenes	1.0	U	NR	ug/L
	1,4-Chlorotoluene-SS		92		% rec

U = Compound analyzed for but not detected.
SS = Surrogate Standard reported as percent recovery.
NR = Not Required. This sample was analyzed by a modified EPA 602 method.

Reviewed by: Greg Jordan

Report of Analytical Data - Purgeable Halocarbons

Client: B.L.M.
Project: Stateline Dump
Proj No: RDD 28631.A0.30
Method: EPA 601
Matrix: Water
Sampler: Client

Laboratory: CH2M Hill/LRD
Lab Sample ID: 26816-5
% Moisture: 100.0
Dilution Factor: 1
Instrument ID: 3700

Date Sampled: 06-14-90
Date Received: 06-15-90
Date Extracted: NA
Date Analyzed: 06-25-90
Analyst: J.W.
Date Reported: 07-05-90

Client Sample ID/Description: MW-99

CAS Number	Compound	Reporting Limit	Sample Result	Confirmation Result	Reporting Units
74-87-3	Chloromethane	1.0	U	NR	ug/L
74-83-9	Bromomethane	1.0	U	NR	ug/L
75-01-4	Vinyl chloride	1.0	U	NR	ug/L
75-00-3	Chloroethane	1.0	U	NR	ug/L
75-09-2	Dichloromethane	1.0	U	NR	ug/L
75-69-4	Trichlorofluoromethane	1.0	U	NR	ug/L
75-35-4	1,1-Dichloroethene	1.0	U	NR	ug/L
75-34-3	1,1-Dichloroethane	1.0	U	NR	ug/L
156-60-5	trans-1,2-Dichloroethene	1.0	U	NR	ug/L
67-66-3	Chloroform	1.0	U	NR	ug/L
107-06-2	1,2-Dichloroethane	1.0	U	NR	ug/L
71-55-6	1,1,1-Trichloroethane	1.0	U	NR	ug/L
56-23-5	Carbon tetrachloride	1.0	U	NR	ug/L
75-27-4	Bromodichloromethane	1.0	U	NR	ug/L
78-87-5	1,2-Dichloropropane	1.0	U	NR	ug/L
10061-01-5	cis-1,3-Dichloropropene	1.0	U	NR	ug/L
79-01-6	Trichloroethene	1.0	U	NR	ug/L
124-48-1	Dibromochloromethane	1.0	U	NR	ug/L
79-00-5	1,1,2-Trichloroethane	1.0	U	NR	ug/L
10061-02-6	trans-1,3-Dichloropropene	1.0	U	NR	ug/L
75-25-2	Bromoform	1.0	U	NR	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	NR	ug/L
127-18-4	Tetrachloroethene	1.0	U	NR	ug/L
108-90-7	Chlorobenzene	1.0	U	NR	ug/L
541-73-1	1,3-Dichlorobenzene	1.0	U	NR	ug/L
95-50-1	1,2-Dichlorobenzene	1.0	U	NR	ug/L
106-46-7	1,4-Dichlorobenzene	1.0	U	NR	ug/L
74-97-5	Bromochloromethane-SS		109		% rec

U = Compound analyzed for but not detected.
SS = Surrogate Standard reported as percent recovery.
NR = Not Required. This sample was analyzed by a modified EPA 601 method.

Reviewed by: Greg Jordan

Report of Analytical Data - Purgeable Aromatics

Client: B.L.M.
Project: Stateline Dump
Proj No: RDD 28631.A0.30
Method: EPA 602
Matrix: Water
Sampler: Client

Laboratory: CH2M Hill/LRD
Lab Sample ID: 26816-5
% Moisture: 100.0
Dilution Factor: 1
Instrument ID: Tracor

Date Sampled: 06-14-90
Date Received: 06-15-90
Date Extracted: NA
Date Analyzed: 06-22-90
Analyst: G.J.
Date Reported: 07-05-90

Client Sample ID/Description: MW-99

CAS Number	Compound	Reporting Limit	Sample Result	Confirmation Result	Reporting Units
108-90-7	Chlorobenzene	1.0	U	NR	ug/L
541-73-1	1,3-Dichlorobenzene	1.0	U	NR	ug/L
95-50-1	1,2-Dichlorobenzene	1.0	U	NR	ug/L
106-46-7	1,4-Dichlorobenzene	1.0	U	NR	ug/L
1634-04-4	tert-Butyl methyl ether	1.0	U	NR	ug/L
71-43-2	Benzene	1.0	U	NR	ug/L
108-88-3	Toluene	1.0	U	NR	ug/L
100-41-4	Ethylbenzene	1.0	U	NR	ug/L
1330-20-7	Total xylenes	1.0	U	NR	ug/L
	1,4-Chlorotoluene-SS		92		% rec

U = Compound analyzed for but not detected.
SS = Surrogate Standard reported as percent recovery.
NR = Not Required. This sample was analyzed by a modified EPA 602 method.

Reviewed by: Greg Jordan

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July 3, 1990

RDD28631.A0

Mr. Darrell Lance
CH2M HILL/LRD
5090 Caterpillar Road
Redding, California 96003

RE: Analytical Data for BLM Stateline Dump, LMG Laboratory No. 16176
LRD Laboratory No. 26816

Dear Mr. Lance:

On June 19, 1990, the CH2M Hill Montgomery Laboratory received five samples with a request for analysis of selected organic parameters.

The analytical results and associated quality control data are enclosed. No unusual difficulties were encountered during the analysis of samples 16176004 (LR26816001) through 16176009 (LR26816006).

If you should have any questions concerning the data, please inquire.

Sincerely,

Wanda L. Hall

for Ward Dickens
Organics Division Manager

Enclosures

cc: Mr. Craig Vinson

WLK 7/7/90

CH2M HILL
Montgomery
Environmental Laboratory
2567 Fairlane Drive, P.O. Box 230548,
Montgomery, Alabama 36116
205.271.1444

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ANALYTICAL METHODOLOGY

Organic Analysis

Priority Pollutants: Water, soil and waste samples are analyzed in accordance with procedures described in Methods 608, 624, and 625, EPA-600/4-82-057 (1982); Methods 8080, 8240, and 8270, Test Methods for Evaluating Solid Waste, 1986, SW-846, Third Edition; and methods outlined in the USEPA Contract Laboratory Program Statement of Work for Organics Analysis, February, 1988.

Volatile Analysis (Safe Drinking Water Act): Water samples are analyzed in accordance with procedures described in Method 524.2, Federal Register (50 FR 46902), November 13, 1985.

Chlorinated Phenoxyacid Herbicides: Samples are analyzed with procedures described in Method 8150, Test Methods for Evaluating Solid Waste, 1986, SW-846, Third Edition.

Organophosphate Pesticides: Samples are analyzed in accordance with procedures described in Methods 614 and 622, EPA-600/4-79-019 (1979) and in Method 8140, Test Methods for Evaluating Solid Waste, 1986, SW-846, Third Edition.

Phenol Analysis by GC: Samples are analyzed in accordance with procedures outlined in Method 604, Federal Register, 40 CFR, Part 136 (July 1, 1987) and in Method 8040, Test Methods for Evaluating Solid Waste, 1986, SW-846, Third Edition.

Polynuclear Aromatic Hydrocarbons (GC analysis): Samples are analyzed with procedures described in Method 610, Federal Register, 40 CFR, Part 136 (July 1, 1987) and in Method 8100, Test Methods for Evaluating Solid Waste, 1986, SW-846, Third Edition.

Ethylene Dibromide : Water samples are analyzed in accordance with procedures outlined in Method 504, Federal Register (50 FR 46902), November 13, 1985.

Trihalomethanes: Water samples are analyzed with procedures described in Method 501.2, Federal Register, Vol. 44, No. 231, Part II, November 29, 1979.

EPA - DEFINED QUALIFIERS

ORGANICS

Definitions for the EPA-defined qualifiers:

U -- Indicates the compound was analyzed for but not detected. The number adjacent to the "U" qualifier indicates the quantitation limit for that compound. The detection limit can vary from sample to sample depending on dilution factors or percent moisture adjustment when indicated.

J -- Indicates an estimated value. This flag is used when the mass spectral data indicates the presence of a compound below the stated PQL. The "J" qualifier is not used with pesticide results.

C -- This flag applies to pesticide results only. The "C" flag indicates the presence of this compound has been confirmed by GC/MS analysis.

B -- This flag is used when the analyte is found in the associated blank as well as the sample. This notation indicates possible blank contamination and suggests the data user evaluate these compounds and their amounts carefully.

E -- This flag applies to GC/MS only. The "E" qualifier indicates a compound may be above or below the linear range of the instrument. If the particular compound level is deemed above the linear calibration range, then the sample should be reanalyzed at an appropriate dilution. Therefore, the "E" qualified amount is an estimated concentration. The results for the dilution will be reported on a separate Form I and will be flagged with a "D" if the dilution brings the concentration within proper calibration.

D -- This flag identifies compounds which have been run at a dilution to bring the concentration of that compound within the linear range of the instrument. "D" qualifiers are only used for samples that have been run initially with results above acceptable ranges. For secondary dilutions the "DL" suffix is appended to the sample number on the Form I.

A -- Indicates the Tentatively Identified Compound (TIC) is a suspected aldol-condensation product.

X -- Indicates the compound concentration has been manually modified or the EPA qualifier has been manually modified or added.

JX -- This value is less than the sample quantitation limit that would have been displayed for "U".

CLIENT SAMPLE ID QUALIFIERS

LEVEL 1

The qualifiers that GC/MS uses with the client sample ID are defined below:

DL -- Dilution Run

R -- Rerun (may be followed by a digit to indicate multiple reruns)

RD -- Diluted Rerun

RX -- Re-extraction Analysis

MS -- Matrix Spike (may be followed by a digit to indicate multiple matrix spikes within a sample set)

MSD -- Matrix Spike Duplicate (may be followed by a digit to indicate multiple matrix spike duplicates within a sample set)

QC_BLANK -- Method Blank (may be followed by an **S** for soils run at a low level, **W** for waters, or **SM** for soils run at a medium level) (letters may be followed by a digit to indicate multiple blanks of that type; if there are no letters the digit indicates multiple blanks).

These qualifiers allow GC/MS to have unique client sample ID's so that the client can get more accurate information from the data reported.

TABLE 1

SAMPLE CROSS-REFERENCE SUMMARY

CH2M HILL Laboratory No. 16176

LMG Sample No.	LRD Sample No.	Sample Description			
16176001	26811001	SAMPLE MW-4	06/13/90	1650	GRAB
16176002	26811002	SAMPLE MW-1	06/13/90	1710	GRAB
16176003	26811003	SAMPLE S-6	06/13/90	1100	SOIL
16176004	26816001	SAMPLE MW-2	06/15/90	1110	GRAB
16176005	26816002	SAMPLE MW-3	06/14/90	1420	GRAB
16176006	26816003	SAMPLE MW-13	06/14/90	1440	GRAB
16176007	26816004	SAMPLE OS-12	06/14/90	1340	GRAB
16176008	26816005	GROUNDWATER MW-99	06/14/90	1130	GRAB
16176009	26816006	GROUNDWATER S-99	06/14/90	1145	GRAB
16176010	26811003	SAMPLE S-6-EPTOX	06/13/90	1100	LEACHATE

Appendix E
MONITORING WELL SAMPLING ANALYTICAL DATA SHEETS
(continued)

SECOND SAMPLING ROUND
(August 1990)

Sample results from the following wells are included in this appendix:

- MW-1
- MW-2
- MW-3
- MW-4

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ORGANICS ANALYSIS DATA SHEET

Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	06/20/90
Lab Sample ID:	16176002	Sample Matrix:	WATER	Date Analyzed:	06/27/90
Client Sample ID:	MW-1	Percent Moisture:		Dilution Factor:	1.0

PHENOLIC ACID COMPOUNDS

CAS Number		ug/L	
108-95-2	Phenol	2	U
95-57-8	2-Chlorophenol	2	U
95-48-7	ortho-Cresol	2	U
106-44-5	para-Cresol &		
108-39-4	meta-Cresol	2	U
88-75-5	2-Nitrophenol	2	U
105-67-9	2,4-Dimethylphenol	2	U
120-83-2	2,4-Dichlorophenol	2	U
59-50-7	4-Chloro-3-methylphenol	2	U
88-06-2	2,4,6-Trichlorophenol	2	U
51-28-5	2,4-Dinitrophenol	5	U
100-02-7	4-Nitrophenol	5	U
534-52-1	4,6-Dinitro-2-methylphenol	5	U
87-86-5	Pentachlorophenol	5	U
	Tribromophenol SS	91	

CAS Number	ug/L

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form I

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ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/MGM
Lab Sample ID: 16176004
Client Sample ID: MW-2

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: ______

Date Extracted: 06/20/90
Date Analyzed: 06/27/90
Dilution Factor: 1.0

PHENOLIC ACID COMPOUNDS

CAS Number		ug/L	
108-95-2	Phenol	2	U
95-57-8	2-Chlorophenol	2	U
95-48-7	ortho-Cresol	2	U
106-44-5	para-Cresol &		
108-39-4	meta-Cresol.	2	U
88-75-5	2-Nitrophenol	2	U
105-67-9	2,4-Dimethylphenol	2	U
120-83-2	2,4-Dichlorophenol	2	U
59-50-7	4-Chloro-3-methylphenol .	2	U
88-06-2	2,4,6-Trichlorophenol . .	2	U
51-28-5	2,4-Dinitrophenol	5	U
100-02-7	4-Nitrophenol	5	U
534-52-1	4,6-Dinitro-2-methylphenol	5	U
87-86-5	Pentachlorophenol	5	U
	Tribromophenol SS	84	

CAS Number	ug/L

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form I

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ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/MGM
Lab Sample ID: 16176005
Client Sample ID: MW-3

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: ______

Date Extracted: 06/20/90
Date Analyzed: 06/27/90
Dilution Factor: 1.0

PHENOLIC ACID COMPOUNDS

CAS Number		ug/L	
108-95-2	Phenol	2	U
95-57-8	2-Chlorophenol	2	U
95-48-7	ortho-Cresol	2	U
106-44-5 108-39-4	para-Cresol & meta-Cresol.	2	U
38-75-5	2-Nitrophenol	2	U
105-67-9	2,4-Dimethylphenol	2	U
120-83-2	2,4-Dichlorophenol	2	U
59-50-7	4-Chloro-3-methylphenol .	2	U
38-06-2	2,4,6-Trichlorophenol . .	2	U
51-28-5	2,4-Dinitrophenol	5	U
100-02-7	4-Nitrophenol	5	U
534-52-1	4,6-Dinitro-2-methylphenol	5	U
37-86-5	Pentachlorophenol	5	U
	Tribromophenol SS	90	

CAS Number	ug/L

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form I

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ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/MGM
Lab Sample ID: 16176001
Client Sample ID: MW-4

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: ______

Date Extracted: 06/20/90
Date Analyzed: 06/27/90
Dilution Factor: 1.0

PHENOLIC ACID COMPOUNDS

CAS Number		ug/L	
108-95-2	Phenol	2	U
95-57-8	2-Chlorophenol	2	U
95-48-7	ortho-Cresol	2	U
106-44-5 108-39-4	para-Cresol & meta-Cresol.	2	U
88-75-5	2-Nitrophenol	2	U
105-67-9	2,4-Dimethylphenol	2	U
120-83-2	2,4-Dichlorophenol	2	U
59-50-7	4-Chloro-3-methylphenol .	2	U
88-06-2	2,4,6-Trichlorophenol . .	2	U
51-28-5	2,4-Dinitrophenol	5	U
100-02-7	4-Nitrophenol	5	U
534-52-1	4,6-Dinitro-2-methylphenol	5	U
87-86-5	Pentachlorophenol	5	U
	Tribromophenol SS	92	

CAS Number ug/L

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form I

000001

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ORGANICS ANALYSIS DATA SHEET

.aboratory Name: CH2M HILL/MGM
.ab Sample ID: 16176006
.lient Sample ID: MW-13
Concentration: LOW
Sample Matrix: WATER
Percent Moisture: ______
Date Extracted: 06/20/90
Date Analyzed: 06/27/90
Dilution Factor: 1.0

PHENOLIC ACID COMPOUNDS

.AS Number		ug/L	
08-95-2	Phenol	2	U
5-57-8	2-Chlorophenol	2	U
5-48-7	ortho-Cresol	2	U
06-44-5	para-Cresol &		
08-39-4	meta-Cresol.	2	U
8-75-5	2-Nitrophenol	2	U
05-67-9	2,4-Dimethylphenol	2	U
20-83-2	2,4-Dichlorophenol	2	U
9-50-7	4-Chloro-3-methylphenol .	2	U
8-06-2	2,4,6-Trichlorophenol . .	2	U
1-28-5	2,4-Dinitrophenol	5	U
00-02-7	4-Nitrophenol	5	U
34-52-1	4,6-Dinitro-2-methylphenol	5	U
7-86-5	Pentachlorophenol	5	U
	Tribromophenol SS	91	

CAS Number	ug/L

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form I

000006

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ORGANICS ANALYSIS DATA SHEET

Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	06/20/90
Lab Sample ID:	16176008	Sample Matrix:	WATER	Date Analyzed:	06/27/90
Client Sample ID:	MW-99	Percent Moisture:		Dilution Factor:	1.0

PHENOLIC ACID COMPOUNDS

CAS Number		ug/L	
108-95-2	Phenol	2	U
95-57-8	2-Chlorophenol	2	U
95-48-7	ortho-Cresol	2	U
106-44-5	para-Cresol &		
108-39-4	meta-Cresol.	2	U
88-75-5	2-Nitrophenol	2	U
105-67-9	2,4-Dimethylphenol	2	U
120-83-2	2,4-Dichlorophenol	2	U
59-50-7	4-Chloro-3-methylphenol .	2	U
88-06-2	2,4,6-Trichlorophenol . .	2	U
51-28-5	2,4-Dinitrophenol	5	U
100-02-7	4-Nitrophenol	5	U
534-52-1	4,6-Dinitro-2-methylphenol	5	U
87-86-5	Pentachlorophenol	5	U
	Tribromophenol SS	88	

CAS Number	ug/L

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

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ORGANICS ANALYSIS DATA SHEET

Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	06/20/90
Lab Sample ID:	W06200B1	Sample Matrix:	WATER	Date Analyzed:	06/27/90
Client Sample ID:	QC BLANK	Percent Moisture:		Dilution Factor:	1.0

PHENOLIC ACID COMPOUNDS

CAS Number		ug/L		CAS Number	ug/L
108-95-2	Phenol	2	U		
95-57-8	2-Chlorophenol	2	U		
95-48-7	ortho-Cresol	2	U		
106-44-5 108-39-4	para-Cresol & meta-Cresol.	2	U		
38-75-5	2-Nitrophenol	2	U		
105-67-9	2,4-Dimethylphenol	2	U		
120-83-2	2,4-Dichlorophenol	2	U		
59-50-7	4-Chloro-3-methylphenol .	2	U		
38-06-2	2,4,6-Trichlorophenol . .	2	U		
51-28-5	2,4-Dinitrophenol	5	U		
100-02-7	4-Nitrophenol	5	U		
534-52-1	4,6-Dinitro-2-methylphenol	5	U		
37-86-5	Pentachlorophenol	5	U		
	Tribromophenol SS	86			

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form I

000011

CH2M HILL
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ORGANICS ANALYSIS DATA SHEET

Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	06/20/90
Lab Sample ID:	W06200B1	Sample Matrix:	WATER	Date Analyzed:	06/27/90
Client Sample ID:	QC BLANK	Percent Moisture:		Dilution Factor:	1.0

PHENOLIC ACID COMPOUNDS

CAS Number		ug/L		CAS Number	ug/L
108-95-2	Phenol	2	U		
95-57-8	2-Chlorophenol	2	U		
95-48-7	ortho-Cresol	2	U		
106-44-5	para-Cresol &				
108-39-4	meta-Cresol.	2	U		
88-75-5	2-Nitrophenol	2	U		
105-67-9	2,4-Dimethylphenol	2	U		
120-83-2	2,4-Dichlorophenol	2	U		
59-50-7	4-Chloro-3-methylphenol .	2	U		
88-06-2	2,4,6-Trichlorophenol . .	2	U		
51-28-5	2,4-Dinitrophenol	5	U		
100-02-7	4-Nitrophenol	5	U		
534-52-1	4,6-Dinitro-2-methylphenol	5	U		
87-86-5	Pentachlorophenol	5	U		
	Tribromophenol SS	86			

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form I

000011

ORGANICS ANALYSIS DATA SHEET

Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	06/19/90
Lab Sample ID:	16176002	Sample Matrix:	WATER	Date Analyzed:	06/30/90
Client Sample ID:	MW-1	Percent Moisture:		Dilution Factor:	1.0

PESTICIDE / PCB COMPOUNDS

CAS Number		ug/L		CAS Number	ug/L
319-84-6	alpha-BHC	0.01	U		
319-85-7	beta-BHC	0.02	U		
319-86-8	delta-BHC	0.01	U		
58-89-9	gamma-BHC (Lindane) . . .	0.01	U		
76-44-8	Heptachlor	0.01	U		
309-00-2	Aldrin	0.01	U		
1024-57-3	Heptachlor Epoxide . . .	0.01	U		
959-98-8	Endosulfan I	0.02	U		
60-57-1	Dieldrin	0.02	U		
72-55-9	4,4′-DDE	0.02	U		
72-20-8	Endrin	0.02	U		
33213-65-9	Endosulfan II	0.02	U		
72-54-8	4,4′-DDD	0.02	U		
1031-07-8	Endosulfan Sulfate . . .	0.02	U		
50-29-3	4,4′-DDT	0.02	U		
72-43-5	Methoxychlor	0.04	U		
7421-93-4	Endrin Aldehyde	0.02	U		
12789-03-6	Chlordane	0.1	U		
8001-35-2	Toxaphene	0.5	U		
12674-11-2	Aroclor-1016	0.8	U		
11104-28-2	Aroclor-1221	2	U		
11141-16-5	Aroclor-1232	2	U		
53469-21-9	Aroclor-1242	0.8	U		
12672-29-6	Aroclor-1248	0.4	U		
11097-69-1	Aroclor-1254	0.2	U		
11096-82-5	Aroclor-1260	0.2	U		
	Dibutylchlorendate - SS	107			

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form I

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/MGM
Lab Sample ID: 16176004
Client Sample ID: MW-2

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: ______

Date Extracted: 06/19/90
Date Analyzed: 07/01/90
Dilution Factor: 1.0

PESTICIDE / PCB COMPOUNDS

CAS Number		ug/L		CAS Number	ug/L
319-84-6	alpha-BHC	0.01	U		
319-85-7	beta-BHC	0.02	U		
319-86-8	delta-BHC	0.01	U		
58-89-9	gamma-BHC (Lindane)	0.01	U		
76-44-8	Heptachlor	0.01	U		
309-00-2	Aldrin	0.01	U		
1024-57-3	Heptachlor Epoxide	0.01	U		
959-98-8	Endosulfan I	0.02	U		
60-57-1	Dieldrin	0.02	U		
72-55-9	4,4′-DDE	0.02	U		
72-20-8	Endrin	0.02	U		
33213-65-9	Endosulfan II	0.02	U		
72-54-8	4,4′-DDD	0.02	U		
1031-07-8	Endosulfan Sulfate	0.02	U		
50-29-3	4,4′-DDT	0.02	U		
72-43-5	Methoxychlor	0.04	U		
7421-93-4	Endrin Aldehyde	0.02	U		
12789-03-6	Chlordane	0.1	U		
8001-35-2	Toxaphene	0.5	U		
12674-11-2	Aroclor-1016	0.8	U		
11104-28-2	Aroclor-1221	2	U		
11141-16-5	Aroclor-1232	2	U		
53469-21-9	Aroclor-1242	0.8	U		
12672-29-6	Aroclor-1248	0.4	U		
11097-69-1	Aroclor-1254	0.2	U		
11096-82-5	Aroclor-1260	0.2	U		
	Dibutylchlorendate - SS	98			

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form I

Jms

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ORGANICS ANALYSIS DATA SHEET

Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	06/19/90
Lab Sample ID:	16176005	Sample Matrix:	WATER	Date Analyzed:	06/30/90
Client Sample ID:	MW-3	Percent Moisture:		Dilution Factor:	1.0

PESTICIDE / PCB COMPOUNDS

CAS Number		ug/L	
319-84-6	alpha-BHC	0.01	U
319-85-7	beta-BHC	0.02	U
319-86-8	delta-BHC	0.01	U
58-89-9	gamma-BHC (Lindane) . . .	0.01	U
76-44-8	Heptachlor	0.01	U
309-00-2	Aldrin	0.01	U
1024-57-3	Heptachlor Epoxide . . .	0.01	U
959-98-8	Endosulfan I	0.02	U
60-57-1	Dieldrin	0.02	U
72-55-9	4,4′-DDE	0.02	U
72-20-8	Endrin	0.02	U
33213-65-9	Endosulfan II	0.02	U
72-54-8	4,4′-DDD	0.02	U
1031-07-8	Endosulfan Sulfate . . .	0.02	U
50-29-3	4,4′-DDT	0.02	U
72-43-5	Methoxychlor	0.04	U
7421-93-4	Endrin Aldehyde	0.02	U
2789-03-6	Chlordane	0.1	U
8001-35-2	Toxaphene	0.5	U
2674-11-2	Aroclor-1016	0.8	U
1104-28-2	Aroclor-1221	2	U
1141-16-5	Aroclor-1232	2	U
53469-21-9	Aroclor-1242	0.8	U
2672-29-6	Aroclor-1248	0.4	U
1097-69-1	Aroclor-1254	0.2	U
1096-82-5	Aroclor-1260	0.2	U
	Dibutylchlorendate - SS	106	

CAS Number ug/L

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form I

000016

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ORGANICS ANALYSIS DATA SHEET

Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	06/19/90
Lab Sample ID:	16176001	Sample Matrix:	WATER	Date Analyzed:	06/30/90
Client Sample ID:	MW-4	Percent Moisture:		Dilution Factor:	1.0

PESTICIDE / PCB COMPOUNDS

CAS Number		ug/L		CAS Number		ug/L
319-84-6	alpha-BHC	0.01	U			
319-85-7	beta-BHC	0.02	U			
319-86-8	delta-BHC	0.01	U			
58-89-9	gamma-BHC (Lindane) . . .	0.01	U			
76-44-8	Heptachlor	0.01	U			
309-00-2	Aldrin	0.01	U			
1024-57-3	Heptachlor Epoxide . . .	0.01	U			
959-98-8	Endosulfan I	0.02	U			
60-57-1	Dieldrin	0.02	U			
72-55-9	4,4'-DDE	0.02	U			
72-20-8	Endrin	0.02	U			
33213-65-9	Endosulfan II	0.02	U			
72-54-8	4,4'-DDD	0.02	U			
1031-07-8	Endosulfan Sulfate . . .	0.02	U			
50-29-3	4,4'-DDT	0.02	U			
72-43-5	Methoxychlor	0.04	U			
7421-93-4	Endrin Aldehyde	0.02	U			
12789-03-6	Chlordane	0.1	U			
8001-35-2	Toxaphene	0.5	U			
12674-11-2	Aroclor-1016	0.8	U			
11104-28-2	Aroclor-1221	2	U			
11141-16-5	Aroclor-1232	2	U			
53469-21-9	Aroclor-1242	0.8	U			
12672-29-6	Aroclor-1248	0.4	U			
11097-69-1	Aroclor-1254	0.2	U			
11096-82-5	Aroclor-1260	0.2	U			
	Dibutylchlorendate - SS	96				

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form I

JWS

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ORGANICS ANALYSIS DATA SHEET

Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	06/19/90
Lab Sample ID:	16176006	Sample Matrix:	WATER	Date Analyzed:	06/30/90
Client Sample ID:	MW-13	Percent Moisture:		Dilution Factor:	1.0

PESTICIDE / PCB COMPOUNDS

CAS Number		ug/L		CAS Number	ug/L
319-84-6	alpha-BHC	0.01	U		
319-85-7	beta-BHC	0.02	U		
319-86-8	delta-BHC	0.01	U		
58-89-9	gamma-BHC (Lindane) . . .	0.01	U		
76-44-8	Heptachlor	0.01	U		
309-00-2	Aldrin	0.01	U		
024-57-3	Heptachlor Epoxide . . .	0.01	U		
959-98-8	Endosulfan I	0.02	U		
60-57-1	Dieldrin	0.02	U		
72-55-9	4,4'-DDE	0.02	U		
72-20-8	Endrin	0.02	U		
33213-65-9	Endosulfan II	0.02	U		
72-54-8	4,4'-DDD	0.02	U		
031-07-8	Endosulfan Sulfate . . .	0.02	U		
50-29-3	4,4'-DDT	0.02	U		
72-43-5	Methoxychlor	0.04	U		
7421-93-4	Endrin Aldehyde	0.02	U		
2789-03-6	Chlordane	0.1	U		
8001-35-2	Toxaphene	0.5	U		
2674-11-2	Aroclor-1016	0.8	U		
1104-28-2	Aroclor-1221	2	U		
1141-16-5	Aroclor-1232	2	U		
53469-21-9	Aroclor-1242	0.8	U		
2672-29-6	Aroclor-1248	0.4	U		
1097-69-1	Aroclor-1254	0.2	U		
1096-82-5	Aroclor-1260	0.2	U		
	Dibutylchlorendate - SS	99			

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form I

Jws

ORGANICS ANALYSIS DATA SHEET

Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	06/19/90
Lab Sample ID:	16176008	Sample Matrix:	WATER	Date Analyzed:	06/30/90
Client Sample ID:	MW-99	Percent Moisture:		Dilution Factor:	1.0

PESTICIDE / PCB COMPOUNDS

CAS Number		ug/L	
319-84-6	alpha-BHC	0.01	U
319-85-7	beta-BHC	0.02	U
319-86-8	delta-BHC	0.01	U
58-89-9	gamma-BHC (Lindane) . . .	0.01	U
76-44-8	Heptachlor	0.01	U
309-00-2	Aldrin	0.01	U
1024-57-3	Heptachlor Epoxide . . .	0.01	U
959-98-8	Endosulfan I	0.02	U
60-57-1	Dieldrin	0.02	U
72-55-9	4,4′-DDE	0.02	U
72-20-8	Endrin	0.02	U
33213-65-9	Endosulfan II	0.02	U
72-54-8	4,4′-DDD	0.02	U
1031-07-8	Endosulfan Sulfate . . .	0.02	U
50-29-3	4,4′-DDT	0.02	U
72-43-5	Methoxychlor	0.04	U
7421-93-4	Endrin Aldehyde	0.02	U
12789-03-6	Chlordane	0.1	U
8001-35-2	Toxaphene	0.5	U
12674-11-2	Aroclor-1016	0.8	U
11104-28-2	Aroclor-1221	2	U
11141-16-5	Aroclor-1232	2	U
53469-21-9	Aroclor-1242	0.8	U
12672-29-6	Aroclor-1248	0.4	U
11097-69-1	Aroclor-1254	0.2	U
11096-82-5	Aroclor-1260	0.2	U
	Dibutylchlorendate - SS	80	

CAS Number	ug/L

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form I

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ORGANICS ANALYSIS DATA SHEET

aboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	06/19/90
ab Sample ID:	W06190B1	Sample Matrix:	WATER	Date Analyzed:	06/30/90
lient Sample ID:	QC BLANK	Percent Moisture:		Dilution Factor:	1.0

PESTICIDE / PCB COMPOUNDS

AS Number		ug/L		CAS Number	ug/L
319-84-6	alpha-BHC	0.01	U		
319-85-7	beta-BHC	0.02	U		
319-86-8	delta-BHC	0.01	U		
8-89-9	gamma-BHC (Lindane)	0.01	U		
6-44-8	Heptachlor	0.01	U		
09-00-2	Aldrin	0.01	U		
024-57-3	Heptachlor Epoxide	0.01	U		
59-98-8	Endosulfan I	0.02	U		
0-57-1	Dieldrin	0.02	U		
2-55-9	4,4′-DDE	0.02	U		
2-20-8	Endrin	0.02	U		
3213-65-9	Endosulfan II	0.02	U		
2-54-8	4,4′-DDD	0.02	U		
031-07-8	Endosulfan Sulfate	0.02	U		
0-29-3	4,4′-DDT	0.02	U		
2-43-5	Methoxychlor	0.04	U		
421-93-4	Endrin Aldehyde	0.02	U		
2789-03-6	Chlordane	0.1	U		
001-35-2	Toxaphene	0.5	U		
2674-11-2	Aroclor-1016	0.8	U		
1104-28-2	Aroclor-1221	2	U		
1141-16-5	Aroclor-1232	2	U		
3469-21-9	Aroclor-1242	0.8	U		
2672-29-6	Aroclor-1248	0.4	U		
1097-69-1	Aroclor-1254	0.2	U		
1096-82-5	Aroclor-1260	0.2	U		
	Dibutylchlorendate - SS	111			

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form I

CH2M HILL
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ORGANICS ANALYSIS DATA SHEET

Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	06/26/90
Lab Sample ID:	W06260B1	Sample Matrix:	WATER	Date Analyzed:	06/30/90
Client Sample ID:	QC BLANK	Percent Moisture:		Dilution Factor:	1.0

PESTICIDE / PCB COMPOUNDS

CAS Number		ug/L	
319-84-6	alpha-BHC	0.01	U
319-85-7	beta-BHC	0.02	U
319-86-8	delta-BHC	0.01	U
58-89-9	gamma-BHC (Lindane)	0.01	U
76-44-8	Heptachlor	0.01	U
309-00-2	Aldrin	0.01	U
1024-57-3	Heptachlor Epoxide	0.01	U
959-98-8	Endosulfan I	0.02	U
60-57-1	Dieldrin	0.02	U
72-55-9	4,4′-DDE	0.02	U
72-20-8	Endrin	0.02	U
33213-65-9	Endosulfan II	0.02	U
72-54-8	4,4′-DDD	0.02	U
1031-07-8	Endosulfan Sulfate	0.02	U
50-29-3	4,4′-DDT	0.02	U
72-43-5	Methoxychlor	0.04	U
7421-93-4	Endrin Aldehyde	0.02	U
12789-03-6	Chlordane	0.1	U
8001-35-2	Toxaphene	0.5	U
12674-11-2	Aroclor-1016	0.8	U
11104-28-2	Aroclor-1221	2	U
11141-16-5	Aroclor-1232	2	U
53469-21-9	Aroclor-1242	0.8	U
12672-29-6	Aroclor-1248	0.4	U
11097-69-1	Aroclor-1254	0.2	U
11096-82-5	Aroclor-1260	0.2	U
	Dibutylchlorendate - SS	110	

CAS Number	ug/L

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form I

000023

CH2M HILL
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ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/MGM
Lab Sample ID: 16176002
Client Sample ID: MW-1

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: ____

Date Extracted: 06/19/90
Date Analyzed: 06/23/90
Dilution Factor: 1.0

ORGANOPHOSPHOROUS PESTICIDE COMPOUNDS

CAS Number		ug/L		CAS Number	ug/L
86-50-0	Azinophos methyl (Guthion). .	2	U		
35400-43-2	Bolstar (Sulprofos)	1	U		
2921-88-2	Chlorpyrifos	1	U		
56-72-4	Coumaphos	1	U		
8065-48-3	Demeton O & S	4	U		
333-41-5	Diazinon	1	U		
62-73-7	Dichlorvos	1	U		
298-04-4	Disulfoton	1	U		
13194-48-4	Ethoprop	1	U		
115-90-2	Fensulfothion	2	U		
55-38-9	Fenthion	1	U		
150-50-5	Merphos	NR			
7786-34-7	Mevinphos (Phosdrin)	1	U		
300-76-5	Naled	3	U		
298-00-0	Parathion methyl	1	U		
298-02-2	Phorate	1	U		
299-84-3	Ronnel	1	U		
961-11-5	Stirofos (Rabon)	1	U		
34643-46-4	Tokuthion (Prothiofos) . . .	1	U		
327-98-0	Trichlornate	1	U		

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Comments: NR - Not recovered during method validation at CH2M HILL.

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/MGM
Lab Sample ID: 16176004
Client Sample ID: MW-2

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: ____

Date Extracted: 06/19/90
Date Analyzed: 06/23/90
Dilution Factor: 1.0

ORGANOPHOSPHOROUS PESTICIDE COMPOUNDS

CAS Number		ug/L	
86-50-0	Azinophos methyl (Guthion). .	2	U
35400-43-2	Bolstar (Sulprofos)	1	U
2921-88-2	Chlorpyrifos	1	U
56-72-4	Coumaphos	1	U
8065-48-3	Demeton O & S	4	U
333-41-5	Diazinon	1	U
62-73-7	Dichlorvos	1	U
298-04-4	Disulfoton	1	U
13194-48-4	Ethoprop	1	U
115-90-2	Fensulfothion	2	U
55-38-9	Fenthion	1	U
150-50-5	Merphos	NR	
7786-34-7	Mevinphos (Phosdrin)	1	U
300-76-5	Naled	3	U
298-00-0	Parathion methyl	1	U
298-02-2	Phorate	1	U
299-84-3	Ronnel	1	U
961-11-5	Stirofos (Rabon)	1	U
34643-46-4	Tokuthion (Prothiofos) . . .	1	U
327-98-0	Trichlornate	1	U

CAS Number	ug/L

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Comments: NR - Not recovered during method validation at CH2M HILL.

Form I

000028

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ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/MGM
Lab Sample ID: 16176005
Client Sample ID: MW-3
Concentration: LOW
Sample Matrix: WATER
Percent Moisture: ____
Date Extracted: 06/19/90
Date Analyzed: 06/24/90
Dilution Factor: 1.0

ORGANOPHOSPHOROUS PESTICIDE COMPOUNDS

CAS Number		ug/L		CAS Number	ug/L
86-50-0	Azinophos methyl (Guthion). .	2	U		
35400-43-2	Bolstar (Sulprofos)	1	U		
2921-88-2	Chlorpyrifos	1	U		
56-72-4	Coumaphos	1	U		
8065-48-3	Demeton O & S	4	U		
333-41-5	Diazinon	1	U		
62-73-7	Dichlorvos	1	U		
298-04-4	Disulfoton	1	U		
13194-48-4	Ethoprop	1	U		
115-90-2	Fensulfothion	2	U		
55-38-9	Fenthion	1	U		
150-50-5	Merphos	NR			
7786-34-7	Mevinphos (Phosdrin)	1	U		
300-76-5	Naled	3	U		
298-00-0	Parathion methyl	1	U		
298-02-2	Phorate	1	U		
299-84-3	Ronnel	1	U		
961-11-5	Stirofos (Rabon)	1	U		
34643-46-4	Tokuthion (Prothiofos) . . .	1	U		
327-98-0	Trichlornate	1	U		

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Comments: NR - Not recovered during method validation at CH2M HILL.

Form I

000029

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/MGM
Lab Sample ID: 16176001
Client Sample ID: MW-4

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: ____

Date Extracted: 06/19/90
Date Analyzed: 06/23/90
Dilution Factor: 1.0

ORGANOPHOSPHOROUS PESTICIDE COMPOUNDS

CAS Number		ug/L		CAS Number	ug/L
86-50-0	Azinophos methyl (Guthion). .	2	U		
35400-43-2	Bolstar (Sulprofos)	1	U		
2921-88-2	Chlorpyrifos	1	U		
56-72-4	Coumaphos	1	U		
8065-48-3	Demeton O & S	4	U		
333-41-5	Diazinon	1	U		
62-73-7	Dichlorvos	1	U		
298-04-4	Disulfoton	1	U		
13194-48-4	Ethoprop	1	U		
115-90-2	Fensulfothion	2	U		
55-38-9	Fenthion	1	U		
150-50-5	Merphos	NR			
7786-34-7	Mevinphos (Phosdrin)	1	U		
300-76-5	Naled	3	U		
298-00-0	Parathion methyl	1	U		
298-02-2	Phorate	1	U		
299-84-3	Ronnel	1	U		
961-11-5	Stirofos (Rabon)	1	U		
34643-46-4	Tokuthion (Prothiofos) . . .	1	U		
327-98-0	Trichlornate	1	U		

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Comments: NR - Not recovered during method validation at CH2M HILL.

Form I

ORGANICS ANALYSIS DATA SHEET

Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	06/19/90
Lab Sample ID:	16176006	Sample Matrix:	WATER	Date Analyzed:	06/24/90
Client Sample ID:	MW-13	Percent Moisture:		Dilution Factor:	1.0

ORGANOPHOSPHOROUS PESTICIDE COMPOUNDS

CAS Number		ug/L		CAS Number	ug/L
86-50-0	Azinophos methyl (Guthion). .	2	U		
35400-43-2	Bolstar (Sulprofos)	1	U		
2921-88-2	Chlorpyrifos	1	U		
56-72-4	Coumaphos	1	U		
8065-48-3	Demeton O & S	4	U		
333-41-5	Diazinon	1	U		
62-73-7	Dichlorvos	1	U		
298-04-4	Disulfoton	1	U		
13194-48-4	Ethoprop	1	U		
115-90-2	Fensulfothion	2	U		
55-38-9	Fenthion	1	U		
150-50-5	Merphos	NR			
7786-34-7	Mevinphos (Phosdrin)	1	U		
300-76-5	Naled	3	U		
298-00-0	Parathion methyl	1	U		
298-02-2	Phorate	1	U		
299-84-3	Ronnel	1	U		
961-11-5	Stirofos (Rabon)	1	U		
34643-46-4	Tokuthion (Prothiofos) . . .	1	U		
327-98-0	Trichlornate	1	U		

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

omments: NR - Not recovered during method validation at CH2M HILL.

Form I

CH2M HILL
Engineers
Planners
Economists
Scientists

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/MGM
Lab Sample ID: 16176008
Client Sample ID: MW-99

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: ____

Date Extracted: 06/19/90
Date Analyzed: 06/24/90
Dilution Factor: 1.0

ORGANOPHOSPHOROUS PESTICIDE COMPOUNDS

CAS Number		ug/L		CAS Number	ug/L
86-50-0	Azinophos methyl (Guthion)	2	U		
35400-43-2	Bolstar (Sulprofos)	1	U		
2921-88-2	Chlorpyrifos	1	U		
56-72-4	Coumaphos	1	U		
8065-48-3	Demeton O & S	4	U		
333-41-5	Diazinon	1	U		
62-73-7	Dichlorvos	1	U		
298-04-4	Disulfoton	1	U		
13194-48-4	Ethoprop	1	U		
115-90-2	Fensulfothion	2	U		
55-38-9	Fenthion	1	U		
150-50-5	Merphos	NR			
7786-34-7	Mevinphos (Phosdrin)	1	U		
300-76-5	Naled	3	U		
298-00-0	Parathion methyl	1	U		
298-02-2	Phorate	1	U		
299-84-3	Ronnel	1	U		
961-11-5	Stirofos (Rabon)	1	U		
34643-46-4	Tokuthion (Prothiofos)	1	U		
327-98-0	Trichlornate	1	U		

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Comments: NR - Not recovered during method validation at CH2M HILL.

Form I

CH2M HILL®
Engineers
Planners
Economists
Scientists

ORGANICS ANALYSIS DATA SHEET

Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	06/19/90
Lab Sample ID:	W06190B1	Sample Matrix:	WATER	Date Analyzed:	07/02/90
Client Sample ID:	QC BLANK	Percent Moisture:		Dilution Factor:	1.0

ORGANOPHOSPHOROUS PESTICIDE COMPOUNDS

CAS Number		ug/L		CAS Number	ug/L
86-50-0	Azinophos methyl (Guthion). .	2	U		
35400-43-2	Bolstar (Sulprofos)	1	U		
2921-88-2	Chlorpyrifos	1	U		
56-72-4	Coumaphos	1	U		
8065-48-3	Demeton O & S	4	U		
333-41-5	Diazinon	1	U		
62-73-7	Dichlorvos	1	U		
298-04-4	Disulfoton	1	U		
563-12-2	Ethion	1	U		
13194-48-4	Ethoprop	1	U		
115-90-2	Fensulfothion	2	U		
55-38-9	Fenthion	1	U		
150-50-5	Merphos	NR			
7786-34-7	Mevinphos (Phosdrin)	1	U		
300-76-5	Naled	3	U		
56-38-2	Parathion ethyl	1	U		
298-00-0	Parathion methyl	1	U		
298-02-2	Phorate	1	U		
299-84-3	Ronnel	1	U		
961-11-5	Stirofos (Rabon)	1	U		
34643-46-4	Tokuthion (Prothiofos) . . .	1	U		
327-98-0	Trichlornate	1	U		

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Comments: NR - Not recovered during method validation at CH2M HILL.

Form I

000035

Engineers
Planners
Economists
Scientists

ORGANICS ANALYSIS DATA SHEET

Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	06/19/90
Lab Sample ID:	W06190B1	Sample Matrix:	WATER	Date Analyzed:	07/02/90
Client Sample ID:	QC BLANK	Percent Moisture:		Dilution Factor:	1.0

ORGANOPHOSPHOROUS PESTICIDE COMPOUNDS

CAS Number		ug/L	
86-50-0	Azinophos methyl (Guthion). .	2	U
35400-43-2	Bolstar (Sulprofos)	1	U
2921-88-2	Chlorpyrifos	1	U
56-72-4	Coumaphos	1	U
8065-48-3	Demeton O & S	4	U
333-41-5	Diazinon	1	U
62-73-7	Dichlorvos	1	U
298-04-4	Disulfoton	1	U
563-12-2	Ethion	1	U
13194-48-4	Ethoprop	1	U
115-90-2	Fensulfothion	2	U
55-38-9	Fenthion	1	U
150-50-5	Merphos	NR	
7786-34-7	Mevinphos (Phosdrin)	1	U
300-76-5	Naled	3	U
56-38-2	Parathion ethyl	1	U
298-00-0	Parathion methyl	1	U
298-02-2	Phorate	1	U
299-84-3	Ronnel	1	U
961-11-5	Stirofos (Rabon)	1	U
34643-46-4	Tokuthion (Prothiofos) . . .	1	U
327-98-0	Trichlornate	1	U

CAS Number	ug/L

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Comments: NR - Not recovered during method validation at CH2M HILL.

Form I

CH. HILL QUALITY ANALYTICS

CHAIN OF CUSTODY RECORD

EXT
MET Jim
DIG Lee
WC Mona

PROJECT NUMBER: RDD28631.A0
PROJECT NAME: BLM Stateline Dump
CLIENT NAME: BLM HILL
PROJECT MANAGER: m/ Mike Smith/RDD
COPY TO:
REQUESTED COMP. DATE: Normal
CLIENT ADDRESS AND PHONE NUMBER: CH2M Hill/RDD

SAMPLING REQUIREMENTS
SDWA ☐ NPDES ☐ RCRA ☐ OTHER ____

ANALYSES REQUESTED

STA NO.	DATE	TIME	COMP	GRAB	SOIL	SAMPLE DESCRIPTIONS (12 CHARACTERS)	# OF CONTAINERS	VOC's GYE3	Pest/PCBs PPE PEX	8140 OPS OPX	Metals IG=TALMERS DIGW	TOC ~~DOC~~ DOC	DOC DOC	TOX IOX	PH, Cl, F, SO4, TDS CL F SO4	604/604 PLF PLE		LAB I.D.	REMARKS
4	6/13/90	1650		X		MW-4	11	X	X	X	X	X	X	X	X	X		1	001
1	6/13/90	1710		X		MW-1	11	X	X	X	X	X	X	X	X	X		2	002
						method Blank					X		toc	DOC	Cl SO4	F		2W1	

Water

Water

REMARKS (lab):
PH Past Holding
Level 1
Report to Donell
Lance by 7/3/90
PPE, PLF, OPS

SAMPLED BY AND TITLE: [illegible] C. Morri
DATE/TIME: 6/13/90 1730
RECEIVED BY:
DATE/TIME:
RECEIVED BY: Bryan W. Burgess
DATE/TIME: 6/19/90 - 0900
RECEIVED BY LAB: Scott Willeby
DATE/TIME: 6-15-90 1300

RELINQUISHED BY: [illegible] C. Morri
DATE/TIME: 6/14/90 0150
RELINQUISHED BY:
DATE/TIME: 6/18/90 330
RELINQUISHED BY:
DATE/TIME:

SAMPLE SHIPPED VIA
UPS [✓ BUS] FED-EX HAND OTHER ____
AIR BILL #: GREYHOUND 501 001 774 774.1

REMARKS

FOR LAB USE ONLY
LAB # 26811
LAB # 16176
PROJECT NO. RDD28631.A0
ACK ck 6/21/90
VERIFIED ck 6/20/90
QUOTE #
BS 39
NO. OF SAMP
PG 1 OF 6
Water - Fed Ex
HAZWRAP/NEESA Y [✓ N]
QC LEVEL [✓ 1] 2 3
COC yes
ICE yes
ANA REQ ↓
TEMP cool
CUST SEAL ↓
Ph <2
SAMPLE COND. good
ENTERED 5/26 COC

.HILL .UALITY ANALYTICS
.AIN OF CUSTODY RECORD

ims

met GC
DIG Lee
Jim ~~Mark~~ Brenda

PROJECT NUMBER: RDD28631.A1.34
PROJECT NAME: BLM Stateline Dump
CLIENT NAME: BLM - HILL   CH2M Hill / Rdd
CLIENT ADDRESS AND PHONE NUMBER: CH2M Hill / RDD
PROJECT MANAGER: mr. Mike Smith / RDD
COPY TO: mr. Pete Lawson / RDD
REQUESTED COMP. DATE: Normal

SAMPLING REQUIREMENTS
SDWA ☐ NPDES ☐ RCRA ☐ OTHER ______

STA NO.	DATE	TIME	COMP	GRAB	SOIL	SAMPLE DESCRIPTIONS (12 CHARACTERS) water	# OF CONTAINERS	Pesticides/PCBs (PPE) (PEX)	8140 (OPS) (OPX)	VOC	Metals	TOC (TOC)	TOX (TRE)	pH, Cl, F, SO4, TDS	8040/604 (DLX) (PLE)	DOC (DOC) (F.1TR)	LAB I.D.
2	6/15/90	1110		X		MW-2	11	X	X	X	X	X	X	X	X	X	1

FOR LAB USE ONLY
LAB# Z6816
LAB# 16176
PROJECT NO. RDD28631.A0
ACK
VERIFIED CK 6/20/90
QUOTE#
BS
NO. OF SAMP
PG 3 OF 6

REMARKS
004

Level 1
PPE, OPS, PLE,
Report to Darrell Lance

Water - Fed Ex
HAZWRAP/NEESA Y [✓ N]
QC LEVEL [✓ 1] 2 3
COC yes
ANA REQ
CUST SEAL
ICE yes
TEMP Cool
PH <2
SAMPLE COND. Good

SAMPLED BY AND TITLE: Cheryl C. Morris
DATE/TIME: 6/15/90 1130
RECEIVED BY:
DATE/TIME:
RECEIVED BY:
DATE/TIME:
RECEIVED BY LAB: Scott Willeby
DATE/TIME: 6-15-90 1626
REMARKS

RELINQUISHED BY: Cheryl C. Morris
DATE/TIME: 6/15/90 1626
RELINQUISHED BY:
DATE/TIME: 6/18/90 330
RELINQUISHED BY:
DATE/TIME:

SAMPLE SHIPPED VIA
UPS BUS FED-EX [✓ HAND] OTHER ______
AIR BILL #

ENTERED   COC

ALITY ANALYTICS

N OF CUSTODY RECORD

OJECT NUMBER: RDD28631.A0.30
PROJECT NAME: BLM Stateline Dump
CLIENT NAME: BLM - Hill
PROJECT MANAGER: Mike Smith /RDD
COPY TO: Peter Lawson/RDD
REQUESTED COMP. DATE: Normal
SAMPLING REQUIREMENTS: SDWA ☐ NPDES ☐ RCRA ☐ OTHER ____
CLIENT ADDRESS AND PHONE NUMBER: CH2M Hill /RDD

DPE PEX OPS OPX 604 TG= TAL DU TOC TOX pH IC ISO4 PLX PLP DOC C.I

FOR LAB USE ONLY
LAB# 26816
LAB# 16176
PROJECT NO. RDD28631.A0
ACK
VERIFIED CR 6/20/90
QUOTE#
BS
NO. OF SAMP
PG 4 OF 6

ANALYSES REQUESTED

STA NO.	DATE	TIME	COMP	GRAB	SOIL	SAMPLE DESCRIPTIONS (12 CHARACTERS)	# OF CONTAINERS	Pesticides/PCBs	8140	VOC	Metals	TOC	TOX	pH, Cl, F, SO4, TDS	8040/604	DOC	LAB ID	REMARKS
3	6/14/90	1420		X		MW-3	11	X	X	X	X	X	X	X	X	X	2	005
13	6/14/90	1440		X		MW-13	11	X	X	X	X	X	X	X	X	X	3	006

-2-3 Bottle
1 Liter plastics
Preserved
SW 6/15/90
Bok split off of 2 1/2 L
D 6/15/90

Water - Fed Ex
HAZWRAP/NEESA Y [✓ N]
QC LEVEL [✓ 1] 2 3
COC yes
ANA REQ
CUST SEAL
ICE yes
TEMP <COOL
Ph <2
SAMPLE COND. Good

MPLED BY AND TITLE:
DATE/TIME: 6/14/90 1500
RELINQUISHED BY: Jeffrey C. Morrel
DATE/TIME: 6/15/90 1627
CEIVED BY:
DATE/TIME:
RELINQUISHED BY:
DATE/TIME: 6/18/90 330
CEIVED BY: Bryan W. Burgess
DATE/TIME: 6/19/90 - 0900
RELINQUISHED BY:
DATE/TIME:
CEIVED BY LAB: Scott Willeby
DATE/TIME: 5:00 6-15-90
SAMPLE SHIPPED VIA: UPS BUS FED-EX [✓ HAND] OTHER ____
AIR BILL#
MARKS

ENTERED INTO LIMS
COC REVIEWED D

ILL JALITY ANALYTICS

N OF CUSTODY RECORD

PPID PRY | OOS OPX | 6A0 | TAL DIG | TLX | TOX | PH ICL | F TDS | PLY ALY | DOC A

OJECT NUMBER: DD28631.A0.30

PROJECT NAME: Stateline Dump

LIENT NAME: BLM

CLIENT ADDRESS AND PHONE NUMBER: CH2MHILL / RDD

OJECT MANAGER: Mike Smith / RDD

COPY TO: PETER LAWSON/RDD

EQUESTED COMP. DATE: mal Turnaround

SAMPLING REQUIREMENTS: SDWA ☐ NPDES ☐ RCRA ☐ OTHER ____

FOR LAB USE ONLY

LAB# 26816

LAB# 16176

PROJECT NO. RDD 28631.A0

ACK

VERIFIED LK 6/20/90

QUOTE#

BS

NO. OF SAMP

PG 6 OF 6

ANALYSES REQUESTED

STA NO.	DATE	TIME	COMP	GRAB	SOIL	SAMPLE DESCRIPTIONS (12 CHARACTERS)	# OF CONTAINERS	Pesticides/PCB's	8140	VOC (8010/8020)	RAS Metals	TOC	TOX	pH, Cl⁻, SO₄⁼, F⁻, TDS	8040/604	DOC			REMARKS
W-99	6/14/90	11:30		X		Groundwater	11	X	X	X	X	X	X	X	X	X		5	008
S-99	6/14/90	11:45		X		Groundwater	11	X	X	X	X	X	X	X	X	X		6	009
						method blank					X	X		ISO4		X		2W1	
											NO	DIGL		ICl	F				

Water - Fed Ex

HAZWRAP/NEESA Y [✓ N]

QC LEVEL [✓ 1] 2 3

COC Yes

ICE Yes

ANA REQ

TEMP cool

CUST SEAL ✓

Ph C2

SAMPLE COND. good

AMPLED BY AND TITLE: TER LAWSON HYDROGEOLOGIST

DATE/TIME: 6/14/90 12:00

RELINQUISHED BY: Pete Lawson

DATE/TIME: 6/14/90 1540

CEIVED BY: ffrey C. Morin

DATE/TIME: 6/14/90 1540

RELINQUISHED BY: Jeffrey C. Morin

DATE/TIME: 6/15/90 1620

CEIVED BY: Bryan W. Burgess

DATE/TIME: 6/19/90 - 0900

RELINQUISHED BY: BB

DATE/TIME: 6/15/90 330

CEIVED BY LAB: Scott Halickas

DATE/TIME: 6-15-90 530

SAMPLE SHIPPED VIA: UPS BUS FED-EX [✓ HAND] OTHER ____

AIR BILL# A6J43289

MARKS

ENTERED COC BH

CH2M HILL
Engineers
Planners
Economists
Scientists

CASE NARRATIVE
General Chemistry
27248

I. Holding Time: All criteria met.

II. Analysis:

A.	Calibration:	Acceptance criteria met.
B.	Blanks:	Acceptance criteria met.
C.	Matrix Spike:	Acceptance criteria met.
D.	Duplicate Analysis:	Acceptance criteria met.
E.	Lab Control Sample:	Acceptance criteria met.
F.	The Nitrate results are reported as N. To convert to Nitrate as NO3 multiply the result by 4.43.	
G.	Other:	None.

III. I certify that this data package is in compliance with the terms and conditions agreed to by the client and CH2M HILL, both technically and for completeness, for other than the conditions detailed above.

SIGNED: Randall Wright DATE: 9/7/90
Randall L. Wright
General Chemistry Supervisor

000001

CH2M HILL
Engineers
Planners
Economists
Scientists

CASE NARRATIVE
Metals

27248

I. **Holding Time:**
All holding times were met.

II. Analysis:

- A. Blanks:
  All acceptance criteria were met.
- B. Calibration:
  All acceptance criteria were met.
- C. ICP Interference Check Sample:
  All acceptance criteria were met.
- D. Spike Sample Analysis:
  All acceptance criteria were met.
- E. Duplicate Sample Analysis:
  All acceptance criteria were met.
- F. Laboratory Control Sample Analysis:
  All acceptance criteria were met.
- G. ICP Serial Dilution:
  Not required for this level QC.
- H. Other:
  None.

III. I certify that this data package is in compliance with the terms and conditions agreed to by the client and CH2M HILL, both technically and for completeness, for other than the conditions detailed above.

Signed: ______________ Date: 9/6/90

Fred Bickell
Cations Supervisor

REPORT OF ANALYTICAL RESULTS

Date: 09/07/90
Page: 1 of 5

Client: CH2M HILL/RDD
P.O. BOX 492478
REDDING, CA 96049

Atten: MR. MIKE SMITH

Project Number: RDD28361.A0.30
BLM-STATELINE
Laboratory Number: 27248
Date Received: 08/07/90

Sample Description: MW-1
Laboratory Sample Number: 27248001 Date Collected: 08/06/90 Matrix: WATER

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Silver	EPA200.7/SW6010	3	<3	ug/L	08/14/90
Aluminum	EPA200.7/SW6010	8	12	ug/L	08/14/90
Arsenic	EPA206.2/SW7060	0.5	0.6	ug/L	08/14/90
Barium	EPA200.7/SW6010	1	2	ug/L	08/14/90
Beryllium	EPA200.7/SW6010	1	<1	ug/L	08/14/90
Calcium	EPA200.7/SW6010	50	16400	ug/L	08/14/90
Cadmium	EPA200.7/SW6010	1	<1	ug/L	08/14/90
Cobalt	EPA200.7/SW6010	4	<4	ug/L	08/14/90
Chromium	EPA200.7/SW6010	3	<3	ug/L	08/14/90
Copper	EPA200.7/SW6010	3	<3	ug/L	08/14/90
Dissolved Organic Carbon	EPA415.2	1.0	1.1	mg/L	08/27/90
Fluoride	EPA340.2	0.05	0.18	mg/L	08/22/90
Iron	EPA200.7/SW6010	20	<20	ug/L	08/14/90
Mercury	EPA245.1/SW7470	0.2	<0.2	ug/L	08/21/90
Chloride	EPA300.0	0.017	2.0	mg/L	08/08/90
Sulfate	EPA300.0	0.010	2.8	mg/L	08/08/90
Potassium	EPA200.7/SW6010	350	1500	ug/L	08/14/90
Magnesium	EPA200.7/SW6010	24	8680	ug/L	08/14/90
Manganese	EPA200.7/SW6010	1	1	ug/L	08/14/90
Sodium	EPA200.7/SW6010	50	7370	ug/L	08/14/90
Nickel	EPA200.7/SW6010	6	<6	ug/L	08/14/90
Lead	EPA239.2/SW7421	0.8	4.3	ug/L	08/15/90
pH	EPA150.1	----	7.88	units	08/07/90
Antimony	EPA200.7/SW6010	10	<10	ug/L	08/14/90
Selenium	EPA270.2/SW7740	0.8	<0.8	ug/L	08/14/90
Total Dissolved Solids	EPA160.1	3	119	mg/L	08/08/90
Thallium	EPA279.2/SW7841	0.6	<0.6	ug/L	08/14/90
Total Organic Carbon	EPA415.2	1.0	<1.0	mg/L	08/27/90
Total Organic Halogen as CL-	SW9020	5.0	13	ug/L	08/27/90
Vanadium	EPA200.7/SW6010	3	11	ug/L	08/14/90
Zinc	EPA200.7/SW6010	3	98	ug/L	08/14/90

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

Reviewed by: J Hawley

INRPRPT(v900202)

CH2M HILL
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Planners
Economists
Scientists

REPORT OF ANALYTICAL RESULTS

Date: 09/07/90
Page: 3 of 5

Client: CH2M HILL/RDD
P.O. BOX 492478
REDDING, CA 96049

Atten: MR. MIKE SMITH

Project Number: RDD28361.A0.30
BLM-STATELINE
Laboratory Number: 27248
Date Received: 08/07/90

Sample Description: MW-2
Laboratory Sample Number: 27248003 Date Collected: 08/07/90 Matrix: WATER

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Silver	EPA200.7/SW6010	3	<3	ug/L	08/14/90
Aluminum	EPA200.7/SW6010	8	21	ug/L	08/14/90
Arsenic	EPA206.2/SW7060	0.5	0.6	ug/L	08/14/90
Barium	EPA200.7/SW6010	1	5	ug/L	08/14/90
Beryllium	EPA200.7/SW6010	1	<1	ug/L	08/14/90
Calcium	EPA200.7/SW6010	50	17800	ug/L	08/14/90
Cadmium	EPA200.7/SW6010	1	<1	ug/L	08/14/90
Cobalt	EPA200.7/SW6010	4	<4	ug/L	08/14/90
Chromium	EPA200.7/SW6010	3	<3	ug/L	08/14/90
Copper	EPA200.7/SW6010	3	<3	ug/L	08/14/90
Dissolved Organic Carbon	EPA415.2	1.0	1.2	mg/L	08/27/90
Fluoride	EPA340.2	0.05	0.15	mg/L	08/22/90
Iron	EPA200.7/SW6010	20	<20	ug/L	08/14/90
Mercury	EPA245.1/SW7470	0.2	<0.2	ug/L	08/21/90
Chloride	EPA300.0	0.017	2.2	mg/L	08/08/90
Sulfate	EPA300.0	0.010	3.2	mg/L	08/08/90
Potassium	EPA200.7/SW6010	350	1700	ug/L	08/14/90
Magnesium	EPA200.7/SW6010	24	8970	ug/L	08/14/90
Manganese	EPA200.7/SW6010	1	<1	ug/L	08/14/90
Sodium	EPA200.7/SW6010	50	7150	ug/L	08/14/90
Nickel	EPA200.7/SW6010	6	<6	ug/L	08/14/90
Lead	EPA239.2/SW7421	0.8	1.6	ug/L	08/15/90
pH	EPA150.1	----	7.75	units	08/07/90
Antimony	EPA200.7/SW6010	10	<10	ug/L	08/14/90
Selenium	EPA270.2/SW7740	0.8	<0.8	ug/L	08/14/90
Total Dissolved Solids	EPA160.1	3	137	mg/L	08/08/90
Thallium	EPA279.2/SW7841	0.6	<0.6	ug/L	08/14/90
Total Organic Carbon	EPA415.2	1.0	1.0	mg/L	08/27/90
Total Organic Halogen as CL-	SW9020	5.0	17	ug/L	08/27/90
Vanadium	EPA200.7/SW6010	3	9	ug/L	08/14/90
Zinc	EPA200.7/SW6010	3	59	ug/L	08/14/90

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

Reviewed by: JE Hawley

INRPRPT(v900202)

REPORT OF ANALYTICAL RESULTS

Client: CH2M HILL/RDD
P.O. BOX 492478
REDDING, CA 96049

Atten: MR. MIKE SMITH

Project Number: RDD28361.A0.30
BLM-STATELINE
Laboratory Number: 27248
Date Received: 08/07/90

Sample Description: MW-3
Laboratory Sample Number: 27248002 Date Collected: 08/06/90 Matrix: WATER

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Silver	EPA200.7/SW6010	3	<3	ug/L	08/14/90
Aluminum	EPA200.7/SW6010	8	23	ug/L	08/14/90
Arsenic	EPA206.2/SW7060	0.5	1.0	ug/L	08/14/90
Barium	EPA200.7/SW6010	1	8	ug/L	08/14/90
Beryllium	EPA200.7/SW6010	1	<1	ug/L	08/14/90
Calcium	EPA200.7/SW6010	50	17900	ug/L	08/14/90
Cadmium	EPA200.7/SW6010	1	<1	ug/L	08/14/90
Cobalt	EPA200.7/SW6010	4	<4	ug/L	08/14/90
Chromium	EPA200.7/SW6010	3	3	ug/L	08/14/90
Copper	EPA200.7/SW6010	3	<3	ug/L	08/14/90
Dissolved Organic Carbon	EPA415.2	1.0	1.2	mg/L	08/27/90
Fluoride	EPA340.2	0.05	0.17	mg/L	08/22/90
Iron	EPA200.7/SW6010	20	<20	ug/L	08/14/90
Mercury	EPA245.1/SW7470	0.2	<0.2	ug/L	08/21/90
Chloride	EPA300.0	0.017	2.5	mg/L	08/08/90
Sulfate	EPA300.0	0.010	3.8	mg/L	08/08/90
Potassium	EPA200.7/SW6010	350	1900	ug/L	08/14/90
Magnesium	EPA200.7/SW6010	24	9240	ug/L	08/14/90
Manganese	EPA200.7/SW6010	1	2	ug/L	08/14/90
Sodium	EPA200.7/SW6010	50	7610	ug/L	08/14/90
Nickel	EPA200.7/SW6010	6	<6	ug/L	08/14/90
Lead	EPA239.2/SW7421	0.8	5.6	ug/L	08/15/90
pH	EPA150.1	----	7.95	units	08/07/90
Antimony	EPA200.7/SW6010	10	<10	ug/L	08/14/90
Selenium	EPA270.2/SW7740	0.8	<0.8	ug/L	08/14/90
Total Dissolved Solids	EPA160.1	3	149	mg/L	08/08/90
Thallium	EPA279.2/SW7841	0.6	<0.6	ug/L	08/14/90
Total Organic Carbon	EPA415.2	1.0	1.3	mg/L	08/27/90
Total Organic Halogen as CL-	SW9020	5.0	<5.0	ug/L	08/28/90
Vanadium	EPA200.7/SW6010	3	11	ug/L	08/14/90
Zinc	EPA200.7/SW6010	3	89	ug/L	08/14/90

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

Reviewed by: Hawley

INRPRPT(v900202)

CH2M HILL
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REPORT OF ANALYTICAL RESULTS

Date: 09/07/90
Page: 4 of 5

Client: CH2M HILL/RDD
P.O. BOX 492478
REDDING, CA 96049

Atten: MR. MIKE SMITH

Project Number: RDD28361.A0.30
BLM-STATELINE
Laboratory Number: 27248
Date Received: 08/07/90

Sample Description: MW-4
Laboratory Sample Number: 27248004 Date Collected: 08/07/90 Matrix: WATER

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Silver	EPA200.7/SW6010	3	<3	ug/L	08/14/90
Aluminum	EPA200.7/SW6010	8	23	ug/L	08/14/90
Arsenic	EPA206.2/SW7060	0.5	0.7	ug/L	08/14/90
Barium	EPA200.7/SW6010	1	4	ug/L	08/14/90
Beryllium	EPA200.7/SW6010	1	<1	ug/L	08/14/90
Calcium	EPA200.7/SW6010	50	20600	ug/L	08/14/90
Cadmium	EPA200.7/SW6010	1	<1	ug/L	08/14/90
Cobalt	EPA200.7/SW6010	4	<4	ug/L	08/14/90
Chromium	EPA200.7/SW6010	3	<3	ug/L	08/14/90
Copper	EPA200.7/SW6010	3	16	ug/L	08/14/90
Dissolved Organic Carbon	EPA415.2	1.0	1.2	mg/L	08/27/90
Fluoride	EPA340.2	0.05	0.15	mg/L	08/22/90
Iron	EPA200.7/SW6010	20	<20	ug/L	08/14/90
Mercury	EPA245.1/SW7470	0.2	<0.2	ug/L	08/21/90
Chloride	EPA300.0	0.017	2.9	mg/L	08/08/90
Sulfate	EPA300.0	0.010	4.3	mg/L	08/08/90
Potassium	EPA200.7/SW6010	350	1900	ug/L	08/14/90
Magnesium	EPA200.7/SW6010	24	10800	ug/L	08/14/90
Manganese	EPA200.7/SW6010	1	6	ug/L	08/14/90
Sodium	EPA200.7/SW6010	50	7410	ug/L	08/14/90
Nickel	EPA200.7/SW6010	6	<6	ug/L	08/14/90
Lead	EPA239.2/SW7421	0.8	6.3	ug/L	08/15/90
pH	EPA150.1	----	7.88	units	08/07/90
Antimony	EPA200.7/SW6010	10	<10	ug/L	08/14/90
Selenium	EPA270.2/SW7740	0.8	<0.8	ug/L	08/14/90
Total Dissolved Solids	EPA160.1	3	143	mg/L	08/08/90
Thallium	EPA279.2/SW7841	0.6	<0.6	ug/L	08/14/90
Total Organic Carbon	EPA415.2	1.0	1.0	mg/L	08/27/90
Total Organic Halogen as CL-	SW9020	5.0	20	ug/L	08/27/90
Vanadium	EPA200.7/SW6010	3	10	ug/L	08/14/90
Zinc	EPA200.7/SW6010	3	168	ug/L	08/14/90

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

Reviewed by: Hawley

INRPRPT(v900202)

REPORT OF ANALYTICAL RESULTS

Date: 09/07/90
Page: 5 of 5

Client: CH2M HILL/RDD
P.O. BOX 492478
REDDING, CA 96049

Atten: MR. MIKE SMITH

Project Number: RDD28361.A0.30
BLM-STATELINE
Laboratory Number: 27248
Date Received: 08/07/90

Sample Description: METHOD BLANK
Laboratory Sample Number: 27248ZW1 Date Collected: 08/08/90 Matrix: WATER BLANK

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Silver	EPA200.7/SW6010	3	<3	ug/L	08/14/90
Aluminum	EPA200.7/SW6010	8	24	ug/L	08/14/90
Arsenic	EPA206.2/SW7060	0.5	<0.5	ug/L	08/14/90
Barium	EPA200.7/SW6010	1	<1	ug/L	08/14/90
Beryllium	EPA200.7/SW6010	1	<1	ug/L	08/14/90
Calcium	EPA200.7/SW6010	50	81	ug/L	08/14/90
Cadmium	EPA200.7/SW6010	1	<1	ug/L	08/14/90
Cobalt	EPA200.7/SW6010	4	<4	ug/L	08/14/90
Chromium	EPA200.7/SW6010	3	<3	ug/L	08/14/90
Copper	EPA200.7/SW6010	3	<3	ug/L	08/14/90
Dissolved Organic Carbon	EPA415.2	1.0	<1.0	mg/L	08/27/90
Fluoride	EPA340.2	0.05	<0.05	mg/L	08/22/90
Iron	EPA200.7/SW6010	20	<20	ug/L	08/14/90
Mercury	EPA245.1/SW7470	0.2	<0.2	ug/L	08/21/90
Chloride	EPA300.0	0.017	<0.017	mg/L	08/08/90
Sulfate	EPA300.0	0.010	<0.01	mg/L	08/08/90
Potassium	EPA200.7/SW6010	350	<350	ug/L	08/14/90
Magnesium	EPA200.7/SW6010	24	<24	ug/L	08/14/90
Manganese	EPA200.7/SW6010	1	<1	ug/L	08/14/90
Sodium	EPA200.7/SW6010	50	75	ug/L	08/14/90
Nickel	EPA200.7/SW6010	6	<6	ug/L	08/14/90
Lead	EPA239.2/SW7421	0.8	<0.8	ug/L	08/15/90
Antimony	EPA200.7/SW6010	10	<10	ug/L	08/14/90
Selenium	EPA270.2/SW7740	0.8	<0.8	ug/L	08/14/90
Thallium	EPA279.2/SW7841	0.6	<0.6	ug/L	08/14/90
Total Organic Carbon	EPA415.2	1.0	<1.0	mg/L	08/27/90
Vanadium	EPA200.7/SW6010	3	<3	ug/L	08/14/90
Zinc	EPA200.7/SW6010	3	5	ug/L	08/14/90

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

Reviewed by: JE Hawley

INRPRPT(v900202)

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CASE NARRATIVE FOR VOLATILE GAS CHROMATOGRAPHY SAMPLES

LABORATORY: CH2M HILL

CLIENT : BLM - Stateline

CASE NO : N/A

CONTRACT NO.: N/A

LAB ID : 27248

SDG # : N/A

I. RECEIPT

A. Date: August 7, 1990

B.

LAB ID	CLIENT ID	SAMPLE MATRIX	DATE SAMPLED	EXTRACTION DATE	ANALYSIS DATE
27248001	MW-1	Water	8/6/90	N/A	8/10/90
27248002	MW-3	Water	8/6/90	N/A	8/10/90
27248003	MW-2	Water	8/7/90	N/A	8/10/90
27248004	MW-4	Water	8/7/90	N/A	8/10/90

C. Documentation Exceptions : None encountered.

II. EXTRACTION

A. Holding Times: Medium level protocol was not performed, therefore, holding times are not applicable.

B. Extraction Exceptions : Not applicable.

III. ANALYSIS

A. Holding Times: Holding times were met.

B. Analytical Exceptions : None encountered.

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jas16

IV. QUALITY CONTROL

A. Method Blank : A method blank is a laboratory generated sample used to determine the degree to which laboratory operations may cause false positive results for these samples. No target parameters were detected in the method blank associated with these samples.

B. Surrogate Recoveries : Met acceptable QC criteria.

C. Matrix Spike Results: Not applicable.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature. Diskette deliverables have not been provided for this data package.

Greg Jordan 8/21/90

Greg Jordan **Date**
GC Section Supervisor

Report of Analytical Data - Purgeable Halocarbons/Aromatics

Client: NA
Project: NA
Proj No: NA
Method: EPA 601/602
Matrix: Water
Sampler: NA

Laboratory: CH2M Hill/LRD
Lab Sample ID: Method Blank
% Moisture: 100.0
Dilution Factor: 1
Instrument ID: GC-3600

Date Sampled: NA
Date Received: NA
Date Extracted: NA
Date Analyzed: 08/10/90
Analyst: J.W.
Date Reported: 08/21/90

Client Sample ID/Description: NA

CAS Number	Compound	Reporting Limit	Sample Result	Confirmation Result	Reporting Units
74-87-3	Chloromethane	1.0	U	NR	ug/L
74-83-9	Bromomethane	1.0	U	NR	ug/L
75-01-4	Vinyl chloride	1.0	U	NR	ug/L
75-00-3	Chloroethane	1.0	U	NR	ug/L
75-09-2	Dichloromethane	1.0	U	NR	ug/L
75-69-4	Trichlorofluoromethane	1.0	U	NR	ug/L
75-35-4	1,1-Dichloroethene	1.0	U	NR	ug/L
75-34-3	1,1-Dichloroethane	1.0	U	NR	ug/L
156-60-5	trans-1,2-Dichloroethene	1.0	U	NR	ug/L
67-66-3	Chloroform	1.0	U	NR	ug/L
107-06-2	1,2-Dichloroethane	1.0	U	NR	ug/L
71-55-6	1,1,1-Trichloroethane	1.0	U	NR	ug/L
56-23-5	Carbon tetrachloride	1.0	U	NR	ug/L
75-27-4	Bromodichloromethane	1.0	U	NR	ug/L
78-87-5	1,2-Dichloropropane	1.0	U	NR	ug/L
10061-01-5	cis-1,3-Dichloropropene	1.0	U	NR	ug/L
79-01-6	Trichloroethene	1.0	U	NR	ug/L
124-48-1	Dibromochloromethane	1.0	U	NR	ug/L
79-00-5	1,1,2-Trichloroethane	1.0	U	NR	ug/L
10061-02-6	trans-1,3-Dichloropropene	1.0	U	NR	ug/L
75-25-2	Bromoform	1.0	U	NR	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	NR	ug/L
127-18-4	Tetrachloroethene	1.0	U	NR	ug/L
108-90-7	Chlorobenzene	1.0	U	NR	ug/L
541-73-1	1,3-Dichlorobenzene	1.0	U	NR	ug/L
95-50-1	1,2-Dichlorobenzene	1.0	U	NR	ug/L
106-46-7	1,4-Dichlorobenzene	1.0	U	NR	ug/L
1634-04-4	tert-Butyl methyl ether	1.0	U	NR	ug/L
71-43-2	Benzene	1.0	U	NR	ug/L
108-88-3	Toluene	1.0	U	NR	ug/L
100-41-4	Ethylbenzene	1.0	U	NR	ug/L
1330-20-7	Total xylenes	1.0	U	NR	ug/L
110-56-5	1,4-Dichlorobutane-SS		113		% rec
1423-10-5	Fluorobenzene-SS		98		% rec

U = Compound analyzed for but not detected.
SS = Surrogate Standard reported as percent recovery.
NR = Not Required. This sample was analyzed by a modified EPA 601/602 Method.

Reviewed by: Greg Jordan

Report of Analytical Data - Purgeable Halocarbons/Aromatics

Client: B.L.M.
Project: BLM - Stateline
Proj No: RDD 28361.A0.30
Method: EPA 601/602
Matrix: Water
Sampler: K. McCleary

Laboratory: CH2M Hill/LRD
Lab Sample ID: 27248-1
% Moisture: 100.0
Dilution Factor: 1
Instrument ID: GC-3600

Date Sampled: 08/06/90
Date Received: 08/07/90
Date Extracted: NA
Date Analyzed: 08/10/90
Analyst: J.W.
Date Reported: 08/21/90

Client Sample ID/Description: MW-1

CAS Number	Compound	Reporting Limit	Sample Result	Confirmation Result	Reporting Units
74-87-3	Chloromethane	1.0	U	NR	ug/L
74-83-9	Bromomethane	1.0	U	NR	ug/L
75-01-4	Vinyl chloride	1.0	U	NR	ug/L
75-00-3	Chloroethane	1.0	U	NR	ug/L
75-09-2	Dichloromethane	1.0	1.3	NR	ug/L
75-69-4	Trichlorofluoromethane	1.0	U	NR	ug/L
75-35-4	1,1-Dichloroethene	1.0	U	NR	ug/L
75-34-3	1,1-Dichloroethane	1.0	U	NR	ug/L
156-60-5	trans-1,2-Dichloroethene	1.0	U	NR	ug/L
67-66-3	Chloroform	1.0	U	NR	ug/L
107-06-2	1,2-Dichloroethane	1.0	U	NR	ug/L
71-55-6	1,1,1-Trichloroethane	1.0	U	NR	ug/L
56-23-5	Carbon tetrachloride	1.0	U	NR	ug/L
75-27-4	Bromodichloromethane	1.0	U	NR	ug/L
78-87-5	1,2-Dichloropropane	1.0	U	NR	ug/L
10061-01-5	cis-1,3-Dichloropropene	1.0	U	NR	ug/L
79-01-6	Trichloroethene	1.0	U	NR	ug/L
124-48-1	Dibromochloromethane	1.0	U	NR	ug/L
79-00-5	1,1,2-Trichloroethane	1.0	U	NR	ug/L
10061-02-6	trans-1,3-Dichloropropene	1.0	U	NR	ug/L
75-25-2	Bromoform	1.0	U	NR	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	NR	ug/L
127-18-4	Tetrachloroethene	1.0	U	NR	ug/L
108-90-7	Chlorobenzene	1.0	U	NR	ug/L
541-73-1	1,3-Dichlorobenzene	1.0	U	NR	ug/L
95-50-1	1,2-Dichlorobenzene	1.0	U	NR	ug/L
106-46-7	1,4-Dichlorobenzene	1.0	U	NR	ug/L
1634-04-4	tert-Butyl methyl ether	1.0	U	NR	ug/L
71-43-2	Benzene	1.0	U	NR	ug/L
108-88-3	Toluene	1.0	U	NR	ug/L
100-41-4	Ethylbenzene	1.0	U	NR	ug/L
1330-20-7	Total xylenes	1.0	U	NR	ug/L
110-56-5	1,4-Dichlorobutane-SS		109		% rec
1423-10-5	Fluorobenzene-SS		98		% rec

U = Compound analyzed for but not detected.
SS = Surrogate Standard reported as percent recovery.
NR = Not Required. This sample was analyzed by a modified EPA 601/602 Method.

Reviewed by:

Report of Analytical Data - Purgeable Halocarbons/Aromatics

Client:	B.L.M.	Laboratory:	CH2M Hill/LRD	Date Sampled:	08/07/90
Project:	BLM - Stateline	Lab Sample ID:	27248-3	Date Received:	08/07/90
Proj No:	RDD 28361.A0.30	% Moisture:	100.0	Date Extracted:	NA
Method:	EPA 601/602	Dilution Factor:	1	Date Analyzed:	08/10/90
Matrix:	Water	Instrument ID:	GC-3600	Analyst:	J.W.
Sampler:	K. McCleary			Date Reported:	08/21/90

Client Sample ID/Description: MW-2

CAS Number	Compound	Reporting Limit	Sample Result	Confirmation Result	Reporting Units
74-87-3	Chloromethane	1.0	U	NR	ug/L
74-83-9	Bromomethane	1.0	U	NR	ug/L
75-01-4	Vinyl chloride	1.0	U	NR	ug/L
75-00-3	Chloroethane	1.0	U	NR	ug/L
75-09-2	Dichloromethane	1.0	1.4	NR	ug/L
75-69-4	Trichlorofluoromethane	1.0	U	NR	ug/L
75-35-4	1,1-Dichloroethene	1.0	U	NR	ug/L
75-34-3	1,1-Dichloroethane	1.0	U	NR	ug/L
156-60-5	trans-1,2-Dichloroethene	1.0	U	NR	ug/L
67-66-3	Chloroform	1.0	U	NR	ug/L
107-06-2	1,2-Dichloroethane	1.0	U	NR	ug/L
71-55-6	1,1,1-Trichloroethane	1.0	U	NR	ug/L
56-23-5	Carbon tetrachloride	1.0	U	NR	ug/L
75-27-4	Bromodichloromethane	1.0	U	NR	ug/L
78-87-5	1,2-Dichloropropane	1.0	U	NR	ug/L
10061-01-5	cis-1,3-Dichloropropene	1.0	U	NR	ug/L
79-01-6	Trichloroethene	1.0	U	NR	ug/L
124-48-1	Dibromochloromethane	1.0	U	NR	ug/L
79-00-5	1,1,2-Trichloroethane	1.0	U	NR	ug/L
10061-02-6	trans-1,3-Dichloropropene	1.0	U	NR	ug/L
75-25-2	Bromoform	1.0	U	NR	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	NR	ug/L
127-18-4	Tetrachloroethene	1.0	U	NR	ug/L
108-90-7	Chlorobenzene	1.0	U	NR	ug/L
541-73-1	1,3-Dichlorobenzene	1.0	U	NR	ug/L
95-50-1	1,2-Dichlorobenzene	1.0	U	NR	ug/L
106-46-7	1,4-Dichlorobenzene	1.0	U	NR	ug/L
1634-04-4	tert-Butyl methyl ether	1.0	U	NR	ug/L
71-43-2	Benzene	1.0	U	NR	ug/L
108-88-3	Toluene	1.0	U	NR	ug/L
100-41-4	Ethylbenzene	1.0	U	NR	ug/L
1330-20-7	Total xylenes	1.0	U	NR	ug/L
110-56-5	1,4-Dichlorobutane-SS		112		% rec
1423-10-5	Fluorobenzene-SS		97		% rec

U = Compound analyzed for but not detected.
SS = Surrogate Standard reported as percent recovery.
NR = Not Required. This sample was analyzed by a modified EPA 601/602 Method.

Reviewed by: Greg Jordan

Report of Analytical Data - Purgeable Halocarbons/Aromatics

Client: B.L.M.
Project: BLM - Stateline
Proj No: RDD 28361.A0.30
Method: EPA 601/602
Matrix: Water
Sampler: K. McCleary

Laboratory: CH2M Hill/LRD
Lab Sample ID: 27248-2
% Moisture: 100.0
Dilution Factor: 1
Instrument ID: GC-3600

Date Sampled: 08/06/90
Date Received: 08/07/90
Date Extracted: NA
Date Analyzed: 08/10/90
Analyst: J.W.
Date Reported: 08/21/90

Client Sample ID/Description: MW-3

CAS Number	Compound	Reporting Limit	Sample Result	Confirmation Result	Reporting Units
74-87-3	Chloromethane	1.0	U	NR	ug/L
74-83-9	Bromomethane	1.0	U	NR	ug/L
75-01-4	Vinyl chloride	1.0	U	NR	ug/L
75-00-3	Chloroethane	1.0	U	NR	ug/L
75-09-2	Dichloromethane	1.0	1.2	NR	ug/L
75-69-4	Trichlorofluoromethane	1.0	U	NR	ug/L
75-35-4	1,1-Dichloroethene	1.0	U	NR	ug/L
75-34-3	1,1-Dichloroethane	1.0	U	NR	ug/L
156-60-5	trans-1,2-Dichloroethene	1.0	U	NR	ug/L
67-66-3	Chloroform	1.0	U	NR	ug/L
107-06-2	1,2-Dichloroethane	1.0	U	NR	ug/L
71-55-6	1,1,1-Trichloroethane	1.0	U	NR	ug/L
56-23-5	Carbon tetrachloride	1.0	U	NR	ug/L
75-27-4	Bromodichloromethane	1.0	U	NR	ug/L
78-87-5	1,2-Dichloropropane	1.0	U	NR	ug/L
10061-01-5	cis-1,3-Dichloropropene	1.0	U	NR	ug/L
79-01-6	Trichloroethene	1.0	U	NR	ug/L
124-48-1	Dibromochloromethane	1.0	U	NR	ug/L
79-00-5	1,1,2-Trichloroethane	1.0	U	NR	ug/L
10061-02-6	trans-1,3-Dichloropropene	1.0	U	NR	ug/L
75-25-2	Bromoform	1.0	U	NR	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	NR	ug/L
127-18-4	Tetrachloroethene	1.0	U	NR	ug/L
108-90-7	Chlorobenzene	1.0	U	NR	ug/L
541-73-1	1,3-Dichlorobenzene	1.0	U	NR	ug/L
95-50-1	1,2-Dichlorobenzene	1.0	U	NR	ug/L
106-46-7	1,4-Dichlorobenzene	1.0	U	NR	ug/L
1634-04-4	tert-Butyl methyl ether	1.0	U	NR	ug/L
71-43-2	Benzene	1.0	U	NR	ug/L
108-88-3	Toluene	1.0	U	NR	ug/L
100-41-4	Ethylbenzene	1.0	U	NR	ug/L
1330-20-7	Total xylenes	1.0	U	NR	ug/L
110-56-5	1,4-Dichlorobutane-SS		105		% rec
1423-10-5	Fluorobenzene-SS		98		% rec

U = Compound analyzed for but not detected.
SS = Surrogate Standard reported as percent recovery.
NR = Not Required. This sample was analyzed by a modified EPA 601/602 Method.

Reviewed by: Greg Jordan

Form I

Report of Analytical Data - Purgeable Halocarbons/Aromatics

Client: B.L.M.
Project: BLM - Stateline
Proj No: RDD 28361.A0.30
Method: EPA 601/602
Matrix: Water
Sampler: K. McCleary

Laboratory: CH2M Hill/LRD
Lab Sample ID: 27248-4
% Moisture: 100.0
Dilution Factor: 1
Instrument ID: GC-3600

Date Sampled: 08/07/90
Date Received: 08/07/90
Date Extracted: NA
Date Analyzed: 08/10/90
Analyst: J.W.
Date Reported: 08/21/90

Client Sample ID/Description: MW-4

CAS Number	Compound	Reporting Limit	Sample Result	Confirmation Result	Reporting Units
74-87-3	Chloromethane	1.0	U	NR	ug/L
74-83-9	Bromomethane	1.0	U	NR	ug/L
75-01-4	Vinyl chloride	1.0	U	NR	ug/L
75-00-3	Chloroethane	1.0	U	NR	ug/L
75-09-2	Dichloromethane	1.0	1.5	NR	ug/L
75-69-4	Trichlorofluoromethane	1.0	U	NR	ug/L
75-35-4	1,1-Dichloroethene	1.0	U	NR	ug/L
75-34-3	1,1-Dichloroethane	1.0	U	NR	ug/L
156-60-5	trans-1,2-Dichloroethene	1.0	U	NR	ug/L
67-66-3	Chloroform	1.0	U	NR	ug/L
107-06-2	1,2-Dichloroethane	1.0	U	NR	ug/L
71-55-6	1,1,1-Trichloroethane	1.0	U	NR	ug/L
56-23-5	Carbon tetrachloride	1.0	U	NR	ug/L
75-27-4	Bromodichloromethane	1.0	U	NR	ug/L
78-87-5	1,2-Dichloropropane	1.0	U	NR	ug/L
10061-01-5	cis-1,3-Dichloropropene	1.0	U	NR	ug/L
79-01-6	Trichloroethene	1.0	U	NR	ug/L
124-48-1	Dibromochloromethane	1.0	U	NR	ug/L
79-00-5	1,1,2-Trichloroethane	1.0	U	NR	ug/L
10061-02-6	trans-1,3-Dichloropropene	1.0	U	NR	ug/L
75-25-2	Bromoform	1.0	U	NR	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	NR	ug/L
127-18-4	Tetrachloroethene	1.0	U	NR	ug/L
108-90-7	Chlorobenzene	1.0	U	NR	ug/L
541-73-1	1,3-Dichlorobenzene	1.0	U	NR	ug/L
95-50-1	1,2-Dichlorobenzene	1.0	U	NR	ug/L
106-46-7	1,4-Dichlorobenzene	1.0	U	NR	ug/L
1634-04-4	tert-Butyl methyl ether	1.0	U	NR	ug/L
71-43-2	Benzene	1.0	U	NR	ug/L
108-88-3	Toluene	1.0	U	NR	ug/L
100-41-4	Ethylbenzene	1.0	U	NR	ug/L
1330-20-7	Total xylenes	1.0	U	NR	ug/L
110-56-5	1,4-Dichlorobutane-SS		111		% rec
1423-10-5	Fluorobenzene-SS		96		% rec

U = Compound analyzed for but not detected.
SS = Surrogate Standard reported as percent recovery.
NR = Not Required. This sample was analyzed by a modified EPA 601/602 Method.

Reviewed by: Greg Jordan

CH2M HILL
Engineers
Planners
Economists
Scientists

CASE NARRATIVE FOR PHENOLS

LABORATORY: CH2M HILL
CLIENT : BLM STATELINE
CASE NO : N/A
CONTRACT NO.: N/A
LAB ID : 27248
SDG # : N/A

I. RECEIPT

A. Date: August 07, 1990

B.

LAB ID	CLIENT ID	SAMPLE MATRIX	DATE SAMPLED	EXTRACTION DATE	ANALYSIS DATE
27248001	MW-1	WATER	08/06/90	08/13/90	08/29/90
27248002	MW-3	WATER	08/06/90	08/13/90	09/05/90
27248003	MW-2	WATER	08/07/90	08/13/90	08/29/90
27248004	MW-4	WATER	08/07/90	08/13/90	08/29/90

C. Documentation Exceptions : None encountered.

II. EXTRACTION

A. Holding Times: All holding times were met.

B. Extraction Exceptions : None encountered.

III. ANALYSIS

A. Holding Times: All holding times were met.

B. Analytical Exceptions : None encountered.

IV. QUALITY CONTROL

A. Method Blank : A method blank is a laboratory generated sample used to determine the degree to which laboratory operations may cause false positive results for these samples. No target parameters were detected in the method blank associated with these samples.

B. Surrogate Recoveries : The surrogate recovery for 2-Fluorophenol were outside control limits for samples 27428003 (MW-2) and sample 27248004 (MW-4). The surrogate recovery for 2,4,6-Tribromophenol was outside control limits for sample 27248002 (MW-3).

C. Matrix Spike Results: Not applicable.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature. Diskette deliverables have not be provided for this data package.

Greg Jordon 9/7/90

Greg Jordon
GC Section Supervisor

Date

kdh.B

WLK 9/7/90

METHOD: EPA 604/8040 (Phenols)

Reference No: Method Blank

Sample Matrix: Water
Dilution Factor: 1

Date Extracted: 08-13-90
Date Analyzed: 08-29-90

Compounds	Detection Limit	Method Blank Result	Units
Phenol	10	< 10	ug/l
2-Chlorophenol	10	< 10	ug/l
2-Nitrophenol	10	< 10	ug/l
2,4-Dimethylphenol	10	< 10	ug/l
2,4-Dichlorophenol	10	< 10	ug/l
4-Chloro-3-methylphenol	10	< 10	ug/l
2,4,6-Trichlorophenol	10	< 10	ug/l
2,4-Dinitrophenol	10	< 10	ug/l
4-Nitrophenol	10	< 10	ug/l
2-Methyl-4,6-dinitrophenol	10	< 10	ug/l
Pentachlorophenol	10	< 10	ug/l
Surrogate (SS-1)		61	% Rec.
Surrogate (SS-2)		54	% Rec.

SS - Surrogate Standard reported as percent recovery.
(SS-1) - 2-Fluorophenol used as surrogate standard.
(SS-2) - 2,4,6-Tribromophenol used as surrogate standard.

Comments:

Approved By: Greg Jordan

METHOD: EPA 604/8040 (Phenols)

Client: BLM Stateline
Client Sample ID: MW-1

Sample Matrix: Water
Dilution Factor: 1

Reference No: 27248-1

Date Sampled: 08-06-90
Date Received: 08-07-90
Date Extracted: 08-13-90
Date Analyzed: 08-29-90

Compounds	Detection Limit	Method Blank Result	Units
Phenol	10	< 10	ug/l
2-Chlorophenol	10	< 10	ug/l
2-Nitrophenol	10	< 10	ug/l
2,4-Dimethylphenol	10	< 10	ug/l
2,4-Dichlorophenol	10	< 10	ug/l
4-Chloro-3-methylphenol	10	< 10	ug/l
2,4,6-Trichlorophenol	10	< 10	ug/l
2,4-Dinitrophenol	10	< 10	ug/l
4-Nitrophenol	10	< 10	ug/l
2-Methyl-4,6-dinitrophenol	10	< 10	ug/l
Pentachlorophenol	10	< 10	ug/l
Surrogate (SS-1)		34	% Rec.
Surrogate (SS-2)		51	% Rec.

SS - Surrogate Standard reported as percent recovery.
(SS-1) - 2-Fluorophenol used as surrogate standard.
(SS-2) - 2,4,6-Tribromophenol used as surrogate standard.

Comments:

Approved By: Greg Jordan

METHOD: EPA 604/8040 (Phenols)

Client: BLM Stateline
Client Sample ID: MW-2

Sample Matrix: Water
Dilution Factor: 1

Reference No: 27248-3

Date Sampled: 08-07-90
Date Received: 08-07-90
Date Extracted: 08-13-90
Date Analyzed: 08-29-90

Compounds	Detection Limit	Method Blank Result	Units
Phenol	10	< 10	ug/l
2-Chlorophenol	10	< 10	ug/l
2-Nitrophenol	10	< 10	ug/l
2,4-Dimethylphenol	10	< 10	ug/l
2,4-Dichlorophenol	10	< 10	ug/l
4-Chloro-3-methylphenol	10	< 10	ug/l
2,4,6-Trichlorophenol	10	< 10	ug/l
2,4-Dinitrophenol	10	< 10	ug/l
4-Nitrophenol	10	< 10	ug/l
2-Methyl-4,6-dinitrophenol	10	< 10	ug/l
Pentachlorophenol	10	< 10	ug/l
Surrogate (SS-1)		4 *	% Rec.
Surrogate (SS-2)		37	% Rec.

SS - Surrogate Standard reported as percent recovery.
(SS-1) - 2-Fluorophenol used as surrogate standard.
(SS-2) - 2,4,6-Tribromophenol used as surrogate standard.

Comments: * Surrogate outside of control limits.

Approved By:

METHOD: EPA 604/8040 (Phenols)

Client: BLM Stateline
Client Sample ID: MW-3

Sample Matrix: Water
Dilution Factor: 1

Reference No: 27248-2

Date Sampled: 08-06-90
Date Received: 08-07-90
Date Extracted: 08-13-90
Date Analyzed: 09-05-90

Compounds	Detection Limit	Method Blank Result	Units
Phenol	10	< 10	ug/l
2-Chlorophenol	10	< 10	ug/l
2-Nitrophenol	10	< 10	ug/l
2,4-Dimethylphenol	10	< 10	ug/l
2,4-Dichlorophenol	10	< 10	ug/l
4-Chloro-3-methylphenol	10	< 10	ug/l
2,4,6-Trichlorophenol	10	< 10	ug/l
2,4-Dinitrophenol	10	< 10	ug/l
4-Nitrophenol	10	< 10	ug/l
2-Methyl-4,6-dinitrophenol	10	< 10	ug/l
Pentachlorophenol	10	< 10	ug/l
Surrogate (SS-1)		59	% Rec.
Surrogate (SS-2)		163 *	% Rec.

SS - Surrogate Standard reported as percent recovery.
(SS-1) - 2-Fluorophenol used as surrogate standard.
(SS-2) - 2,4,6-Tribromophenol used as surrogate standard.

Comments: * Surrogate outside of control limits.

Approved By: Greg Jordan

METHOD: EPA 604/8040 (Phenols)

Client: BLM Stateline
Client Sample ID: MW-4

Sample Matrix: Water
Dilution Factor: 1

Reference No: 27248-4

Date Sampled: 08-07-90
Date Received: 08-07-90
Date Extracted: 08-13-90
Date Analyzed: 08-29-90

Compounds	Detection Limit	Method Blank Result	Units
Phenol	10	< 10	ug/l
2-Chlorophenol	10	< 10	ug/l
2-Nitrophenol	10	< 10	ug/l
2,4-Dimethylphenol	10	< 10	ug/l
2,4-Dichlorophenol	10	< 10	ug/l
4-Chloro-3-methylphenol	10	< 10	ug/l
2,4,6-Trichlorophenol	10	< 10	ug/l
2,4-Dinitrophenol	10	< 10	ug/l
4-Nitrophenol	10	< 10	ug/l
2-Methyl-4,6-dinitrophenol	10	< 10	ug/l
Pentachlorophenol	10	< 10	ug/l
Surrogate (SS-1)		7 *	% Rec.
Surrogate (SS-2)		40	% Rec.

SS - Surrogate Standard reported as percent recovery.
(SS-1) - 2-Fluorophenol used as surrogate standard.
(SS-2) - 2,4,6-Tribromophenol used as surrogate standard.

Comments: * Surrogate outside of control limits.

Approved By: Greg Jordan

Engineers
Planners
Economists
Scientists

CASE NARRATIVE FOR PESTICIDES & PCBs

LABORATORY:	CH2M HILL	**CLIENT :**	B.L.M. - Stateline
CASE NO :	N/A	**CONTRACT NO.:**	N/A
LAB ID :	27248	**SDG # :**	N/A

I. RECEIPT

A. Date: August 7, 1990

B.

LAB ID	CLIENT ID	SAMPLE MATRIX	DATE SAMPLED	EXTRACTION DATE	ANALYSIS DATE
27248001	MW-1	Water	8/6/90	8/13/90	8/17/90
27248002	MW-3	Water	8/6/90	8/13/90	8/17/90
27248003	MW-2	Water	8/7/90	8/13/90	8/17/90
27248004	MW-4	Water	8/7/90	8/13/90	8/17/90

C. Documentation Exceptions : None encountered.

II. EXTRACTION

A. Holding Times: Holding times were met.

B. Extraction Exceptions : None encountered.

III. ANALYSIS

A. Holding Times: Holding times were met.

B. Analytical Exceptions : None encountered.

jas16

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IV. QUALITY CONTROL

A. Method Blank : A method blank is a laboratory generated sample used to determine the degree to which laboratory operations may cause false positive results for these samples. No target parameters were detected in the method blank associated with these samples.

B. Surrogate Recoveries : Met acceptable QC criteria.

C. Matrix Spike Results: Not applicable.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature. Diskette deliverables have not been provided for this data package.

Greg Jordan 8/23/90

Greg Jordan **Date**
GC Section Supervisor

METHOD: 608
Pesticides & PCBs

Reference No: Method Blank

Sample Matrix: Water
Dilution Factor: 1

Date Extracted: 08-13-90
Date Analyzed: 08-17-90

Compounds	Detection Limit	Method Blank Result	Units
Aldrin	0.05	< 0.05	ug/l
a-BHC	0.05	< 0.05	ug/l
b-BHC	0.05	< 0.05	ug/l
g-BHC	0.05	< 0.05	ug/l
d-BHC	0.05	< 0.05	ug/l
Chlordane	0.2	< 0.2	ug/l
4,4'-DDD	0.1	< 0.1	ug/l
4,4'-DDE	0.1	< 0.1	ug/l
4,4'-DDT	0.1	< 0.1	ug/l
Dieldrin	0.02	< 0.02	ug/l
Endosulfan I	0.05	< 0.05	ug/l
Endosulfan II	0.1	< 0.1	ug/l
Endosulfan Sulfate	0.1	< 0.1	ug/l
Endrin	0.06	< 0.06	ug/l
Endrin Aldehyde	0.1	< 0.1	ug/l
Endrin Ketone	0.05	< 0.05	ug/l
Heptachlor	0.02	< 0.02	ug/l
Heptachlor Epoxide	0.05	< 0.05	ug/l
4,4'-Methoxychlor	0.1	< 0.1	ug/l
Toxaphene	1.0	< 1.0	ug/l
PCB 1016	0.8	< 0.8	ug/l
PCB 1221	2.0	< 2.0	ug/l
PCB 1232	2.0	< 2.0	ug/l
PCB 1242	0.8	< 0.8	ug/l
PCB 1248	0.5	< 0.5	ug/l
PCB 1254	1.0	< 1.0	ug/l
PCB 1260	1.0	< 1.0	ug/l
Surrogate (SS)		84	% Rec.

(SS) - Surrogate Standard reported as percent recovery.
Dibutyl Chlorendate used as surrogate standard.

Comments:

Approved By:

CH2M HILL
Engineers
Planners
Economists
Scientists

METHOD: 608
Pesticides & PCBs

Client: B.L.M. - Stateline
Client Sample ID: MW-1

Reference No: 27248-1

Date Sampled: 08-06-90
Date Received: 08-07-90
Date Extracted: 08-13-90
Date Analyzed: 08-17-90

Sample Matrix: Water
Dilution Factor: 1

Compounds	Detection Limit	Sample Result	Units
Aldrin	0.05	< 0.05	ug/l
a-BHC	0.05	< 0.05	ug/l
b-BHC	0.05	< 0.05	ug/l
g-BHC	0.05	< 0.05	ug/l
d-BHC	0.05	< 0.05	ug/l
Chlordane	0.2	< 0.2	ug/l
4,4'-DDD	0.1	< 0.1	ug/l
4,4'-DDE	0.1	< 0.1	ug/l
4,4'-DDT	0.1	< 0.1	ug/l
Dieldrin	0.02	< 0.02	ug/l
Endosulfan I	0.05	< 0.05	ug/l
Endosulfan II	0.1	< 0.1	ug/l
Endosulfan Sulfate	0.1	< 0.1	ug/l
Endrin	0.06	< 0.06	ug/l
Endrin Aldehyde	0.1	< 0.1	ug/l
Endrin Ketone	0.05	< 0.05	ug/l
Heptachlor	0.02	< 0.02	ug/l
Heptachlor Epoxide	0.05	< 0.05	ug/l
4,4'-Methoxychlor	0.1	< 0.1	ug/l
Toxaphene	1.0	< 1.0	ug/l
PCB 1016	0.8	< 0.8	ug/l
PCB 1221	2.0	< 2.0	ug/l
PCB 1232	2.0	< 2.0	ug/l
PCB 1242	0.8	< 0.8	ug/l
PCB 1248	0.5	< 0.5	ug/l
PCB 1254	1.0	< 1.0	ug/l
PCB 1260	1.0	< 1.0	ug/l
Surrogate (SS)		78	% Rec.

(SS) - Surrogate Standard reported as percent recovery.
Dibutyl Chlorendate used as surrogate standard.

Comments:

Approved By:

jas16

METHOD: 608
Pesticides & PCBs

Client: B.L.M. - Stateline
Client Sample ID: MW-2

Sample Matrix: Water
Dilution Factor: 1

Reference No: 27248-3

Date Sampled: 08-07-90
Date Received: 08-07-90
Date Extracted: 08-13-90
Date Analyzed: 08-17-90

Compounds	Detection Limit	Sample Result	Units
Aldrin	0.05	< 0.05	ug/l
a-BHC	0.05	< 0.05	ug/l
b-BHC	0.05	< 0.05	ug/l
g-BHC	0.05	< 0.05	ug/l
d-BHC	0.05	< 0.05	ug/l
Chlordane	0.2	< 0.2	ug/l
4,4'-DDD	0.1	< 0.1	ug/l
4,4'-DDE	0.1	< 0.1	ug/l
4,4'-DDT	0.1	< 0.1	ug/l
Dieldrin	0.02	< 0.02	ug/l
Endosulfan I	0.05	< 0.05	ug/l
Endosulfan II	0.1	< 0.1	ug/l
Endosulfan Sulfate	0.1	< 0.1	ug/l
Endrin	0.06	< 0.06	ug/l
Endrin Aldehyde	0.1	< 0.1	ug/l
Endrin Ketone	0.05	< 0.05	ug/l
Heptachlor	0.02	< 0.02	ug/l
Heptachlor Epoxide	0.05	< 0.05	ug/l
4,4'-Methoxychlor	0.1	< 0.1	ug/l
Toxaphene	1.0	< 1.0	ug/l
PCB 1016	0.8	< 0.8	ug/l
PCB 1221	2.0	< 2.0	ug/l
PCB 1232	2.0	< 2.0	ug/l
PCB 1242	0.8	< 0.8	ug/l
PCB 1248	0.5	< 0.5	ug/l
PCB 1254	1.0	< 1.0	ug/l
PCB 1260	1.0	< 1.0	ug/l
Surrogate (SS)		82	% Rec.

(SS) - Surrogate Standard reported as percent recovery.
Dibutyl Chlorendate used as surrogate standard.

Comments:

Approved By:

CH2M HILL
Engineers
Planners
Economists
Scientists

METHOD: 608
Pesticides & PCBs

Client: B.L.M. - Stateline
Client Sample ID: MW-3

Reference No: 27248-2

Date Sampled: 08-06-90
Date Received: 08-07-90
Date Extracted: 08-13-90
Date Analyzed: 08-17-90

Sample Matrix: Water
Dilution Factor: 1

Compounds	Detection Limit	Sample Result	Units
Aldrin	0.05	< 0.05	ug/l
a-BHC	0.05	< 0.05	ug/l
b-BHC	0.05	< 0.05	ug/l
g-BHC	0.05	< 0.05	ug/l
d-BHC	0.05	< 0.05	ug/l
Chlordane	0.2	< 0.2	ug/l
4,4'-DDD	0.1	< 0.1	ug/l
4,4'-DDE	0.1	< 0.1	ug/l
4,4'-DDT	0.1	< 0.1	ug/l
Dieldrin	0.02	< 0.02	ug/l
Endosulfan I	0.05	< 0.05	ug/l
Endosulfan II	0.1	< 0.1	ug/l
Endosulfan Sulfate	0.1	< 0.1	ug/l
Endrin	0.06	< 0.06	ug/l
Endrin Aldehyde	0.1	< 0.1	ug/l
Endrin Ketone	0.05	< 0.05	ug/l
Heptachlor	0.02	< 0.02	ug/l
Heptachlor Epoxide	0.05	< 0.05	ug/l
4,4'-Methoxychlor	0.1	< 0.1	ug/l
Toxaphene	1.0	< 1.0	ug/l
PCB 1016	0.8	< 0.8	ug/l
PCB 1221	2.0	< 2.0	ug/l
PCB 1232	2.0	< 2.0	ug/l
PCB 1242	0.8	< 0.8	ug/l
PCB 1248	0.5	< 0.5	ug/l
PCB 1254	1.0	< 1.0	ug/l
PCB 1260	1.0	< 1.0	ug/l
Surrogate (SS)		78	% Rec.

(SS) - Surrogate Standard reported as percent recovery.
Dibutyl Chlorendate used as surrogate standard.

Comments:

Approved By: Greg Jonker

jas16

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METHOD: 608
Pesticides & PCBs

Client: B.L.M. - Stateline
Client Sample ID: MW-4

Reference No: 27248-4

Date Sampled: 08-07-90
Date Received: 08-07-90
Date Extracted: 08-13-90
Date Analyzed: 08-17-90

Sample Matrix: Water
Dilution Factor: 1

Compounds	Detection Limit	Sample Result	Units
Aldrin	0.05	< 0.05	ug/l
a-BHC	0.05	< 0.05	ug/l
b-BHC	0.05	< 0.05	ug/l
g-BHC	0.05	< 0.05	ug/l
d-BHC	0.05	< 0.05	ug/l
Chlordane	0.2	< 0.2	ug/l
4,4'-DDD	0.1	< 0.1	ug/l
4,4'-DDE	0.1	< 0.1	ug/l
4,4'-DDT	0.1	< 0.1	ug/l
Dieldrin	0.02	< 0.02	ug/l
Endosulfan I	0.05	< 0.05	ug/l
Endosulfan II	0.1	< 0.1	ug/l
Endosulfan Sulfate	0.1	< 0.1	ug/l
Endrin	0.06	< 0.06	ug/l
Endrin Aldehyde	0.1	< 0.1	ug/l
Endrin Ketone	0.05	< 0.05	ug/l
Heptachlor	0.02	< 0.02	ug/l
Heptachlor Epoxide	0.05	< 0.05	ug/l
4,4'-Methoxychlor	0.1	< 0.1	ug/l
Toxaphene	1.0	< 1.0	ug/l
PCB 1016	0.8	< 0.8	ug/l
PCB 1221	2.0	< 2.0	ug/l
PCB 1232	2.0	< 2.0	ug/l
PCB 1242	0.8	< 0.8	ug/l
PCB 1248	0.5	< 0.5	ug/l
PCB 1254	1.0	< 1.0	ug/l
PCB 1260	1.0	< 1.0	ug/l
Surrogate (SS)		72	% Rec.

(SS) - Surrogate Standard reported as percent recovery.
Dibutyl Chlorendate used as surrogate standard.

Comments:

Approved By: Greg Jordan

jas16

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August 21, 1990

RDD28361.A0.30

Mr. Darrell Lance
CH2M HILL/LRD
5090 Caterpillar Road
Redding, CA 96003

RE: Analytical Data for BLM Stateline, Laboratory No. 16554

Dear Mr. Lance:

On August 10, 1990, the CH2M Hill Montgomery Laboratory received four samples with a request for analysis of selected organic parameters.

The analytical results and associated quality control data are enclosed. No unusual difficulties were encountered during the analysis of these samples.

If you should have any questions concerning the data, please inquire.

Sincerely,

Ward Dickens

Ward Dickens
Organics Division Manager

Enclosures

cc: Mr. Craig Vinson

CH2M HILL Montgomery Environmental Laboratory 2567 Fairlane Drive, P.O. Box 230548, Montgomery, Alabama 36116 205.271.1444

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CH2M HILL Laboratory No. 16554

Page No.

List of Organic Analytical Methods i

List of Organic EPA-defined Qualifiers ii

List of Organic Sample ID Qualifiers iii

Sample Cross-reference iv

ORGANOPHOSPHOROUS PESTICIDE DATA

Analytical Results of Field Samples

MW-1 (LMG #16554001) 1
MW-3 (LMG #16554002) 2
MW-2 (LMG #16554003) 3
MW-4 (LMG #16554004) 4

Quality Control Data

Results of Method Blank (W08130B1) 5

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ANALYTICAL METHODOLOGY

Organic Analysis

Priority Pollutants: Water, soil and waste samples are analyzed in accordance with procedures described in Methods 608, 624, and 625, EPA-600/4-82-057 (1982); Methods 8080, 8240, and 8270, Test Methods for Evaluating Solid Waste, 1986, SW-846, Third Edition; and methods outlined in the USEPA Contract Laboratory Program Statement of Work for Organics Analysis, February, 1988.

Volatile Analysis (Safe Drinking Water Act): Water samples are analyzed in accordance with procedures described in Method 524.2, Federal Register (50 FR 46902), November 13, 1985.

Chlorinated Phenoxyacid Herbicides: Samples are analyzed with procedures described in Method 8150, Test Methods for Evaluating Solid Waste, 1986, SW-846, Third Edition.

Organophosphate Pesticides: Samples are analyzed in accordance with procedures described in Methods 614 and 622, EPA-600/4-79-019 (1979) and in Method 8140, Test Methods for Evaluating Solid Waste, 1986, SW-846, Third Edition.

Phenol Analysis by GC: Samples are analyzed in accordance with procedures outlined in Method 604, Federal Register, 40 CFR, Part 136 (July 1, 1987) and in Method 8040, Test Methods for Evaluating Solid Waste, 1986, SW-846, Third Edition.

Polynuclear Aromatic Hydrocarbons (GC analysis): Samples are analyzed with procedures described in Method 610, Federal Register, 40 CFR, Part 136 (July 1, 1987) and in Method 8100, Test Methods for Evaluating Solid Waste, 1986, SW-846, Third Edition.

Ethylene Dibromide : Water samples are analyzed in accordance with procedures outlined in Method 504, Federal Register (50 FR 46902), November 13, 1985.

Trihalomethanes: Water samples are analyzed with procedures described in Method 501.2, Federal Register, Vol. 44, No. 231, Part II, November 29, 1979.

EPA - DEFINED QUALIFIERS

ORGANICS

Definitions for the EPA-defined qualifiers:

U --	Indicates the compound was analyzed for but not detected. The number adjacent to the "U" qualifier indicates the quantitation limit for that compound. The detection limit can vary from sample to sample depending on dilution factors or percent moisture adjustment when indicated.
J --	Indicates an estimated value. This flag is used when the mass spectral data indicates the presence of a compound below the stated PQL. The "J" qualifier is not used with pesticide results.
C --	This flag applies to pesticide results only. The "C" flag indicates the presence of this compound has been confirmed by GC/MS analysis.
B --	This flag is used when the analyte is found in the associated blank as well as the sample. This notation indicates possible blank contamination and suggests the data user evaluate these compounds and their amounts carefully.
E --	This flag applies to GC/MS only. The "E" qualifier indicates a compound may be above or below the linear range of the instrument. If the particular compound level is deemed above the linear calibration range, then the sample should be reanalyzed at an appropriate dilution. Therefore, the "E" qualified amount is an estimated concentration. The results for the dilution will be reported on a separate Form I and will be flagged with a "D" if the dilution brings the concentration within proper calibration.
D --	This flag identifies compounds which have been run at a dilution to bring the concentration of that compound within the linear range of the instrument. "D" qualifiers are only used for samples that have been run initially with results above acceptable ranges. For secondary dilutions the "DL" suffix is appended to the sample number on the Form I.
A --	Indicates the Tentatively Identified Compound (TIC) is a suspected aldol-condensation product.
X --	Indicates the compound concentration has been manually modified or the EPA qualifier has been manually modified or added.
JX --	This value is less than the sample quantitation limit that would have been displayed for "U".

CLIENT SAMPLE ID QUALIFIERS

LEVEL 1

The qualifiers that GC/MS uses with the client sample ID are defined below:

DL -- Dilution Run

R -- Rerun (may be followed by a digit to indicate multiple reruns)

RD -- Diluted Rerun

RX -- Re-extraction Analysis

MS -- Matrix Spike (may be followed by a digit to indicate multiple matrix spikes within a sample set)

MSD -- Matrix Spike Duplicate (may be followed by a digit to indicate multiple matrix spike duplicates within a sample set)

QC_BLANK -- Method Blank (may be followed by an **S** for soils run at a low level, **W** for waters, or **SM** for soils run at a medium level) (letters may be followed by a digit to indicate multiple blanks of that type; if there are no letters the digit indicates multiple blanks).

These qualifiers allow GC/MS to have unique client sample ID's so that the client can get more accurate information from the data reported.

TABLE 1

SAMPLE CROSS-REFERENCE SUMMARY

CH2M HILL Laboratory No. 16554

LMG Sample No.	LRD Sample No.	Sample Description			
16554001	27248001	SAMPLE MW-1	08/06/90		
16554002	27248002	SAMPLE MW-3	08/06/90	1640	
16554003	27248003	SAMPLE MW-2	08/07/90	0840	GRAB
16554004	27248004	SAMPLE MW-4	08/07/90	1200	GRAB

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ORGANICS ANALYSIS DATA SHEET

Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	08/13/90
Lab Sample ID:	16554001	Sample Matrix:	WATER	Date Analyzed:	08/17/90
Client Sample ID:	MW-1	Percent Moisture:		Dilution Factor:	1.0

ORGANOPHOSPHOROUS PESTICIDE COMPOUNDS

CAS Number		uq/L		CAS Number	uq/L
86-50-0	Azinophos methyl (Guthion)	2	U		
35400-43-2	Bolstar (Sulprofos)	1	U		
2921-88-2	Chlorpyrifos	1	U		
5598-13-0	Chlorpyrifos methyl	1	U		
56-72-4	Coumaphos	1	U		
8065-48-3	Demeton	4	U		
333-41-5	Diazinon	1	U		
62-73-7	Dichlorvos	1	U		
298-04-4	Disulfoton	1	U		
563-12-2	Ethion	1	U		
13194-48-4	Ethoprop	1	U		
115-90-2	Fensulfothion	2	U		
55-38-9	Fenthion	1	U		
121-75-5	Malathion	1	U		
150-50-5	Merphos	NR			
7786-34-7	Mevinphos (Phosdrin)	1	U		
300-76-5	Naled	3	U		
56-38-2	Parathion ethyl	1	U		
298-00-0	Parathion methyl	1	U		
298-02-2	Phorate	1	U		
299-84-3	Ronnel	1	U		
961-11-5	Stirofos (Rabon)	1	U		
34643-46-4	Tokuthion (Prothiofos)	1	U		
327-98-0	Trichlornate	1	U		
	Aspon - SS	65			

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Comments: NR - Not recovered during method validation at CH2M HILL.

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ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/MGM
Lab Sample ID: 16554003
Client Sample ID: MW-2

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: ____

Date Extracted: 08/13/90
Date Analyzed: 08/17/90
Dilution Factor: 1.0

ORGANOPHOSPHOROUS PESTICIDE COMPOUNDS

CAS Number		ug/L		CAS Number	ug/L
86-50-0	Azinophos methyl (Guthion). .	2	U		
35400-43-2	Bolstar (Sulprofos)	1	U		
2921-88-2	Chlorpyrifos	1	U		
5598-13-0	Chlorpyrifos methyl	1	U		
56-72-4	Coumaphos	1	U		
8065-48-3	Demeton	4	U		
333-41-5	Diazinon	1	U		
62-73-7	Dichlorvos	1	U		
298-04-4	Disulfoton	1	U		
563-12-2	Ethion	1	U		
13194-48-4	Ethoprop	1	U		
115-90-2	Fensulfothion	2	U		
55-38-9	Fenthion	1	U		
121-75-5	Malathion	1	U		
150-50-5	Merphos	NR			
7786-34-7	Mevinphos (Phosdrin)	1	U		
300-76-5	Naled	3	U		
56-38-2	Parathion ethyl	1	U		
298-00-0	Parathion methyl	1	U		
298-02-2	Phorate	1	U		
299-84-3	Ronnel	1	U		
961-11-5	Stirofos (Rabon)	1	U		
34643-46-4	Tokuthion (Prothiofos) . . .	1	U		
327-98-0	Trichlornate	1	U		
	Aspon - SS	63			

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Comments: NR - Not recovered during method validation at CH2M HILL.

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Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	08/13/90
Lab Sample ID:	16554002	Sample Matrix:	WATER	Date Analyzed:	08/17/90
Client Sample ID:	MW-3	Percent Moisture:		Dilution Factor:	1.0

ORGANOPHOSPHOROUS PESTICIDE COMPOUNDS

CAS Number		ug/L		CAS Number	ug/L
86-50-0	Azinophos methyl (Guthion)	2	U		
35400-43-2	Bolstar (Sulprofos)	1	U		
2921-88-2	Chlorpyrifos	1	U		
5598-13-0	Chlorpyrifos methyl	1	U		
56-72-4	Coumaphos	1	U		
8065-48-3	Demeton	4	U		
333-41-5	Diazinon	1	U		
62-73-7	Dichlorvos	1	U		
298-04-4	Disulfoton	1	U		
563-12-2	Ethion	1	U		
13194-48-4	Ethoprop	1	U		
115-90-2	Fensulfothion	2	U		
55-38-9	Fenthion	1	U		
121-75-5	Malathion	1	U		
150-50-5	Merphos	NR			
7786-34-7	Mevinphos (Phosdrin)	1	U		
300-76-5	Naled	3	U		
56-38-2	Parathion ethyl	1	U		
298-00-0	Parathion methyl	1	U		
298-02-2	Phorate	1	U		
299-84-3	Ronnel	1	U		
961-11-5	Stirofos (Rabon)	1	U		
34643-46-4	Tokuthion (Prothiofos)	1	U		
327-98-0	Trichlornate	1	U		
	Aspon - SS	58			

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Comments: NR - Not recovered during method validation at CH2M HILL.

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ORGANICS ANALYSIS DATA SHEET

Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	08/13/90
Lab Sample ID:	16554004	Sample Matrix:	WATER	Date Analyzed:	08/17/90
Client Sample ID:	MW-4	Percent Moisture:		Dilution Factor:	1.0

ORGANOPHOSPHOROUS PESTICIDE COMPOUNDS

CAS Number		ug/L		CAS Number	ug/L
86-50-0	Azinophos methyl (Guthion). .	2	U		
35400-43-2	Bolstar (Sulprofos)	1	U		
2921-88-2	Chlorpyrifos	1	U		
5598-13-0	Chlorpyrifos methyl	1	U		
56-72-4	Coumaphos	1	U		
8065-48-3	Demeton	4	U		
333-41-5	Diazinon	1	U		
62-73-7	Dichlorvos	1	U		
298-04-4	Disulfoton	1	U		
563-12-2	Ethion	1	U		
13194-48-4	Ethoprop	1	U		
115-90-2	Fensulfothion	2	U		
55-38-9	Fenthion	1	U		
121-75-5	Malathion	1	U		
150-50-5	Merphos	NR			
7786-34-7	Mevinphos (Phosdrin)	1	U		
300-76-5	Naled	3	U		
56-38-2	Parathion ethyl	1	U		
298-00-0	Parathion methyl	1	U		
298-02-2	Phorate	1	U		
299-84-3	Ronnel	1	U		
961-11-5	Stirofos (Rabon)	1	U		
34643-46-4	Tokuthion (Prothiofos) . . .	1	U		
327-98-0	Trichlornate	1	U		
	Aspon - SS	53			

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Comments: NR - Not recovered during method validation at CH2M HILL.

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ORGANICS ANALYSIS DATA SHEET

Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	08/13/90
Lab Sample ID:	W08130B1	Sample Matrix:	WATER	Date Analyzed:	08/17/90
Client Sample ID:	QC BLANK	Percent Moisture:		Dilution Factor:	1.0

ORGANOPHOSPHOROUS PESTICIDE COMPOUNDS

CAS Number		ug/L	
86-50-0	Azinophos methyl (Guthion). .	2	U
35400-43-2	Bolstar (Sulprofos)	1	U
2921-88-2	Chlorpyrifos	1	U
5598-13-0	Chlorpyrifos methyl	1	U
56-72-4	Coumaphos	1	U
8065-48-3	Demeton	4	U
333-41-5	Diazinon	1	U
62-73-7	Dichlorvos	1	U
298-04-4	Disulfoton	1	U
563-12-2	Ethion	1	U
13194-48-4	Ethoprop	1	U
115-90-2	Fensulfothion	2	U
55-38-9	Fenthion	1	U
121-75-5	Malathion	1	U
150-50-5	Merphos	NR	
7786-34-7	Mevinphos (Phosdrin)	1	U
300-76-5	Naled	3	U
56-38-2	Parathion ethyl	1	U
298-00-0	Parathion methyl	1	U
298-02-2	Phorate	1	U
299-84-3	Ronnel	1	U
961-11-5	Stirofos (Rabon)	1	U
34643-46-4	Tokuthion (Prothiofos) . . .	1	U
327-98-0	Trichlornate	1	U
	Aspon - SS	65	

CAS Number	ug/L

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Comments: NR - Not recovered during method validation at CH2M HILL.

Form I

CH2M HILL QUALITY ANALYTICS

PPE OPE GVE TG= TCL PLE ToJ Doc ToX PH Sol D

see WC Mona
Jim

CHAIN OF CUSTODY RECORD

PROJECT NUMBER: RDD28361.A0.30
PROJECT NAME: BLM-Stateline
CLIENT NAME: CH2M Hill/RDD
CLIENT ADDRESS AND PHONE NUMBER: CH2M Hill/RDD
PROJECT MANAGER: M Mike Smith
COPY TO: MT P. Lawson
REQUESTED COMP. DATE: Norm TAT

SAMPLING REQUIREMENTS
SDWA ☐ NPDES ☐ RCRA ☐ OTHER ____
water

STA NO.	DATE	TIME	COMP	GRAB	SOIL	SAMPLE DESCRIPTIONS (12 CHARACTERS)	# OF CONTAINERS	608/5050	614/8140	601/602	RAS Metals	604/8040	TOC	DOC	TOX	PH, F, Cl, SO4, TDS		LAB I.D.	REMARKS
MW1	8-6-90					MW-1	12	X	X	X	X	X	X	X	X	X		1	001
MW3	8-6-90	16:40				MW-3	12	X	X	X	X	X	X	X	X	X		2	002

FOR LAB USE ONLY
LAB# 27248
LAB# 16554
PROJECT NO. RDD28361.A0.30
ACK ER 8/14
VERIFIED AS 8/13/90 MT
QUOTE#
BS [illegible] 8/13/
NO. OF SAMP
PG 1 OF 2

REMARKS
Help Request
TOC
DOC
TOX

Level 1
Report to Donnell Lane
by 8/29/90
OPE OPX to LMG 8/9

Water - FedEx
HAZWRAP/NEESA Y [✓ N]
QC LEVEL [✓ 1] 2 3
COC Yes
ANA REQ Yes
CUST SEAL No
SAMPLE COND GOOD
ICE Yes
TEMP [illegible]
Ph N/A

SAMPLED BY AND TITLE: K. McCleary Hydrology
DATE/TIME: 90 8/6/90
RELINQUISHED BY: Kim McCleary
DATE/TIME: 8-7-90 4:53
RECEIVED BY:
DATE/TIME:
RELINQUISHED BY:
DATE/TIME: 8/9/90 300
RECEIVED BY: Bennett P. Gard
DATE/TIME: 8/10/90 0900
RELINQUISHED BY:
DATE/TIME:
RECEIVED BY LAB:
DATE/TIME: 8/7/90 4:53
SAMPLE SHIPPED VIA: UPS BUS FED-EX [✓ HAND] OTHER ____
AIR BILL#
REMARKS

A8A5 1298

ENTERED COC

M ILL QUALITY ANALYTICS

CHAIN OF CUSTODY RECORD

TC Talme DA PE GVC PLE PLX TOC DOC TOX pH TDS Dig

PROJECT NUMBER	RDD28361.A0.30
PROJECT NAME	PLM-Stakline
CLIENT NAME	CH2M Hill /RDD
PROJECT MANAGER	Mike Smith
COPY TO:	P. Lawson
REQUESTED COMP. DATE	Normal TAT
CLIENT ADDRESS AND PHONE NUMBER	CH2M Hill /RDD

SAMPLING REQUIREMENTS: SDWA ☐ NPDES ☐ RCRA ☐ OTHER ____

FOR LAB USE ONLY	
LAB#	27248
LAB#	16554
PROJECT NO.	RDD28361.A0.30
ACK	
VERIFIED	JMS 8/13/90
QUOTE#	
BS	8/13/90
NO. OF SAMP	
PG	2
OF	2

ANALYSES REQUESTED

STA NO.	DATE	TIME	COMP	GRAB	SOIL	SAMPLE DESCRIPTIONS (12 CHARACTERS)	# OF CONTAINERS	608/8080	614/8140	601/602	FAS Metals	604/8040	TOC	DOC	TOX	pH, F, Cl, SO4, TDS		LAB ID	REMARKS
MW2	8-7-90	840		✓		MW-2	12	X	X	X	X	X	X	X	X	X		3	003
MW4	8-7-90	1200		✓		MW-4	12	X	X	X	X	X	X	X	X	X		4	004
						method Blank for Water					X No Dig		X	X		No pH TDS		ZW1	

SAMPLED BY AND TITLE	GW Kim McCleary Hydrol.
DATE/TIME	8-7-90
RECEIVED BY:	
DATE/TIME	
RECEIVED BY:	Bryan W. Burgess
DATE/TIME	8/10/90 - 0900
RECEIVED BY LAB:	
DATE/TIME	8/ /90 453
RELINQUISHED BY	Kim McCleary
DATE/TIME	8-7-90 4:53
RELINQUISHED BY:	
DATE/TIME	8/9/90 3pm
RELINQUISHED BY:	
DATE/TIME	

SAMPLE SHIPPED VIA: UPS BUS FED-EX [✓ HAND] OTHER ____ ✓

AIR BILL#

REMARKS

Water-Fed Ex

HAZWRAP/NEESA	Y [✓ N]		
QC LEVEL	[✓ 1] 2 3		
COC	Yes	ICE	yes
ANA REQ	Yes	TEMP	4°
CUST SEAL	Not	PH	N/A
SAMPLE COND.	good		

Appendix E
MONITORING WELL SAMPLING ANALYTICAL DATA SHEETS
(continued)

THIRD SAMPLING ROUND
(October 1990)

Sample results from the following wells are included in this appendix:

- MW-1
- MW-2
- MW-3
- MW-3A (duplicate of MW-3)
- MW-4
- MW-5 (field blank)

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CASE NARRATIVE
General Chemistry
27985

I. Holding Time: All criteria met.

II. Analysis:

A. Calibration: Acceptance criteria met.
B. Blanks: Acceptance criteria met.
C. Matrix Spike: Acceptance criteria met.
D. Duplicate Analysis: Acceptance criteria met.
E. Lab Control Sample: Acceptance criteria met.
F. The Nitrate results are reported as N. To convert to Nitrate as NO3 multiply the result by 4.43.
G. Other: None.

III. I certify that this data package is in compliance with the terms and conditions agreed to by the client and CH2M HILL, both technically and for completeness, for other than the conditions detailed above.

SIGNED: Hawley DATE: 11/21/90
Randall L. Wright
General Chemistry Supervisor

CH2M HILL
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CASE NARRATIVE
Metals

27985

I. **Holding Time:**
All holding times were met.

II. Analysis:

A. Blanks:
All acceptance criteria were met.

B. Calibration:
All acceptance criteria were met.

C. ICP Interference Check Sample:
All acceptance criteria were met.

D. Spike Sample Analysis:
All acceptance criteria were met.

E. Duplicate Sample Analysis:
All acceptance criteria were met.

F. Laboratory Control Sample Analysis:
All acceptance criteria were met.

G. ICP Serial Dilution:
Not required for this level QC.

H. Other:
None.

III. I certify that this data package is in compliance with the terms and conditions agreed to by the client and CH2M HILL, both technically and for completeness, for other than the conditions detailed above.

Signed: JE Hawley Date: 11/21/90

Fred Bickell
Cations Supervisor

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REPORT OF ANALYTICAL RESULTS

Date: 11/21/90
Page: 1 of 7

Client: CH2M HILL/RDD
P.O. BOX 492478
REDDING, CA 96049

Project Number: RDD28361.A0.30
STATE LINE DUMP
Laboratory Number: 27985
Date Received: 10/31/90

Atten: MR. MIKE SMITH

Sample Description: MW1
Laboratory Sample Number: 27985001 Date Collected: 10/29/90 Matrix: WATER

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Silver	EPA200.7/SW6010	3	<3	ug/L	11/09/90
Aluminum	EPA200.7/SW6010	8	146	ug/L	11/09/90
Arsenic	EPA206.2/SW7060	0.5	<0.5	ug/L	11/08/90
Barium	EPA200.7/SW6010	1	3	ug/L	11/09/90
Beryllium	EPA200.7/SW6010	1	<1	ug/L	11/09/90
Calcium	EPA200.7/SW6010	50	16800	ug/L	11/09/90
Cadmium	EPA200.7/SW6010	1	<1	ug/L	11/09/90
Cobalt	EPA200.7/SW6010	4	<4	ug/L	11/09/90
Chromium	EPA200.7/SW6010	3	4	ug/L	11/09/90
Copper	EPA200.7/SW6010	3	<3	ug/L	11/09/90
Dissolved Organic Carbon	EPA415.2	1.0	<1.0	mg/L	11/16/90
Fluoride	EPA340.2	0.05	<0.05	mg/L	11/16/90
Iron	EPA200.7/SW6010	20	238	ug/L	11/09/90
Mercury	EPA245.1/SW7470	0.2	<0.2	ug/L	11/04/90
Chloride	EPA300.0	0.085	1.74	mg/L	11/08/90
Sulfate	EPA300.0	0.050	2.76	mg/L	11/08/90
Potassium	EPA200.7/SW6010	350	1600	ug/L	11/09/90
Magnesium	EPA200.7/SW6010	24	9020	ug/L	11/09/90
Manganese	EPA200.7/SW6010	1	5	ug/L	11/09/90
Sodium	EPA200.7/SW6010	50	7060	ug/L	11/09/90
Nickel	EPA200.7/SW6010	6	<6	ug/L	11/09/90
Lead	EPA239.2/SW7421	0.8	1.7	ug/L	11/13/90
pH	EPA150.1	----	8.12	units	10/31/90
Antimony	EPA200.7/SW6010	10	<10	ug/L	11/09/90
Selenium	EPA270.2/SW7740	0.8	<0.8	ug/L	11/09/90
Total Dissolved Solids	EPA160.1	3	122	mg/L	11/03/90
Thallium	EPA279.2/SW7841	0.6	0.6	ug/L	11/07/90
Total Organic Carbon	EPA415.2	1.0	<1.0	mg/L	11/16/90
Total Organic Halogen as CL-	SW9020	5.0	<5.0	ug/L	11/09/90
Vanadium	EPA200.7/SW6010	3	10	ug/L	11/09/90
Zinc	EPA200.7/SW6010	3	90	ug/L	11/09/90

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

Reviewed by: J Hawley

INRPRPT(v900202)

REPORT OF ANALYTICAL RESULTS

Date: 11/21/90
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Client: CH2M HILL/RDD
P.O. BOX 492478
REDDING, CA 96049

Atten: MR. MIKE SMITH

Project Number: RDD28361.A0.30
STATE LINE DUMP
Laboratory Number: 27985
Date Received: 10/31/90

Sample Description: MW2
Laboratory Sample Number: 27985002 Date Collected: 10/30/90 Matrix: WATER

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Silver	EPA200.7/SW6010	3	<3	ug/L	11/09/90
Aluminum	EPA200.7/SW6010	8	20	ug/L	11/09/90
Arsenic	EPA206.2/SW7060	0.5	<0.5	ug/L	11/08/90
Barium	EPA200.7/SW6010	1	5	ug/L	11/09/90
Beryllium	EPA200.7/SW6010	1	<1	ug/L	11/09/90
Calcium	EPA200.7/SW6010	50	18200	ug/L	11/09/90
Cadmium	EPA200.7/SW6010	1	<1	ug/L	11/09/90
Cobalt	EPA200.7/SW6010	4	<4	ug/L	11/09/90
Chromium	EPA200.7/SW6010	3	<3	ug/L	11/09/90
Copper	EPA200.7/SW6010	3	<3	ug/L	11/09/90
Dissolved Organic Carbon	EPA415.2	1.0	<1.0	mg/L	11/16/90
Fluoride	EPA340.2	0.05	<0.05	mg/L	11/16/90
Iron	EPA200.7/SW6010	20	<20	ug/L	11/09/90
Mercury	EPA245.1/SW7470	0.2	<0.2	ug/L	11/04/90
Chloride	EPA300.0	0.085	1.96	mg/L	11/08/90
Sulfate	EPA300.0	0.050	3.01	mg/L	11/08/90
Potassium	EPA200.7/SW6010	350	1600	ug/L	11/09/90
Magnesium	EPA200.7/SW6010	24	9500	ug/L	11/09/90
Manganese	EPA200.7/SW6010	1	<1	ug/L	11/09/90
Sodium	EPA200.7/SW6010	50	7360	ug/L	11/09/90
Nickel	EPA200.7/SW6010	6	<6	ug/L	11/09/90
Lead	EPA239.2/SW7421	0.8	<0.8	ug/L	11/13/90
pH	EPA150.1	----	7.88	units	10/31/90
Antimony	EPA200.7/SW6010	10	<10	ug/L	11/09/90
Selenium	EPA270.2/SW7740	0.8	<0.8	ug/L	11/09/90
Total Dissolved Solids	EPA160.1	3	121	mg/L	11/03/90
Thallium	EPA279.2/SW7841	0.6	<0.6	ug/L	11/07/90
Total Organic Carbon	EPA415.2	1.0	<1.0	mg/L	11/16/90
Total Organic Halogen as CL-	SW9020	5.0	<5.0	ug/L	11/09/90
Vanadium	EPA200.7/SW6010	3	10	ug/L	11/09/90
Zinc	EPA200.7/SW6010	3	284	ug/L	11/09/90

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

Reviewed by: Hawley

INRPRPT(v900202)

REPORT OF ANALYTICAL RESULTS

Date: 11/21/90
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Client: CH2M HILL/RDD
P.O. BOX 492478
REDDING, CA 96049

Atten: MR. MIKE SMITH

Project Number: RDD28361.A0.30
STATE LINE DUMP
Laboratory Number: 27985
Date Received: 10/31/90

Sample Description: MW3
Laboratory Sample Number: 27985003 Date Collected: 10/30/90 Matrix: WATER

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Silver	EPA200.7/SW6010	3	<3	ug/L	11/09/90
Aluminum	EPA200.7/SW6010	8	31	ug/L	11/09/90
Arsenic	EPA206.2/SW7060	0.5	0.7	ug/L	11/08/90
Barium	EPA200.7/SW6010	1	8	ug/L	11/09/90
Beryllium	EPA200.7/SW6010	1	<1	ug/L	11/09/90
Calcium	EPA200.7/SW6010	50	18400	ug/L	11/09/90
Cadmium	EPA200.7/SW6010	1	<1	ug/L	11/09/90
Cobalt	EPA200.7/SW6010	4	<4	ug/L	11/09/90
Chromium	EPA200.7/SW6010	3	<3	ug/L	11/09/90
Copper	EPA200.7/SW6010	3	<3	ug/L	11/09/90
Dissolved Organic Carbon	EPA415.2	1.0	<1.0	mg/L	11/16/90
Fluoride	EPA340.2	0.05	<0.05	mg/L	11/16/90
Iron	EPA200.7/SW6010	20	31	ug/L	11/09/90
Mercury	EPA245.1/SW7470	0.2	<0.2	ug/L	11/04/90
Chloride	EPA300.0	0.085	2.10	mg/L	11/08/90
Sulfate	EPA300.0	0.050	3.61	mg/L	11/08/90
Potassium	EPA200.7/SW6010	350	1900	ug/L	11/09/90
Magnesium	EPA200.7/SW6010	24	9840	ug/L	11/09/90
Manganese	EPA200.7/SW6010	1	1	ug/L	11/09/90
Sodium	EPA200.7/SW6010	50	7850	ug/L	11/09/90
Nickel	EPA200.7/SW6010	6	<6	ug/L	11/09/90
Lead	EPA239.2/SW7421	0.8	1.0	ug/L	11/13/90
pH	EPA150.1	----	8.11	units	10/31/90
Antimony	EPA200.7/SW6010	10	<10	ug/L	11/09/90
Selenium	EPA270.2/SW7740	0.8	<0.8	ug/L	11/09/90
Total Dissolved Solids	EPA160.1	3	130	mg/L	11/03/90
Thallium	EPA279.2/SW7841	0.6	<0.6	ug/L	11/07/90
Total Organic Carbon	EPA415.2	1.0	<1.0	mg/L	11/16/90
Total Organic Halogen as CL-	SW9020	5.0	<5.0	ug/L	11/09/90
Vanadium	EPA200.7/SW6010	3	11	ug/L	11/09/90
Zinc	EPA200.7/SW6010	3	66	ug/L	11/09/90

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

Reviewed by: Hawley

INRPRPT(v900202)

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REPORT OF ANALYTICAL RESULTS

Date: 11/21/90
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Client: CH2M HILL/RDD
P.O. BOX 492478
REDDING, CA 96049

Project Number: RDD28361.A0.30
STATE LINE DUMP
Laboratory Number: 27985
Date Received: 10/31/90

Atten: MR. MIKE SMITH

Sample Description: MW3A
Laboratory Sample Number: 27985004 Date Collected: 10/30/90 Matrix: WATER

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Silver	EPA200.7/SW6010	3	<3	ug/L	11/09/90
Aluminum	EPA200.7/SW6010	8	25	ug/L	11/09/90
Arsenic	EPA206.2/SW7060	0.5	0.5	ug/L	11/08/90
Barium	EPA200.7/SW6010	1	7	ug/L	11/09/90
Beryllium	EPA200.7/SW6010	1	<1	ug/L	11/09/90
Calcium	EPA200.7/SW6010	50	18400	ug/L	11/09/90
Cadmium	EPA200.7/SW6010	1	<1	ug/L	11/09/90
Cobalt	EPA200.7/SW6010	4	<4	ug/L	11/09/90
Chromium	EPA200.7/SW6010	3	<3	ug/L	11/09/90
Copper	EPA200.7/SW6010	3	<3	ug/L	11/09/90
Dissolved Organic Carbon	EPA415.2	1.0	1.1	mg/L	11/16/90
Fluoride	EPA340.2	0.05	<0.05	mg/L	11/16/90
Iron	EPA200.7/SW6010	20	32	ug/L	11/09/90
Mercury	EPA245.1/SW7470	0.2	<0.2	ug/L	11/04/90
Chloride	EPA300.0	0.085	2.24	mg/L	11/08/90
Sulfate	EPA300.0	0.050	3.64	mg/L	11/08/90
Potassium	EPA200.7/SW6010	350	1800	ug/L	11/09/90
Magnesium	EPA200.7/SW6010	24	9870	ug/L	11/09/90
Manganese	EPA200.7/SW6010	1	2	ug/L	11/09/90
Sodium	EPA200.7/SW6010	50	7880	ug/L	11/09/90
Nickel	EPA200.7/SW6010	6	<6	ug/L	11/09/90
Lead	EPA239.2/SW7421	0.8	<0.8	ug/L	11/13/90
pH	EPA150.1	----	8.13	units	10/31/90
Antimony	EPA200.7/SW6010	10	<10	ug/L	11/09/90
Selenium	EPA270.2/SW7740	0.8	<0.8	ug/L	11/09/90
Total Dissolved Solids	EPA160.1	3	120	mg/L	11/03/90
Thallium	EPA279.2/SW7841	0.6	<0.6	ug/L	11/07/90
Total Organic Carbon	EPA415.2	1.0	<1.0	mg/L	11/16/90
Total Organic Halogen as CL-	SW9020	5.0	16	ug/L	11/09/90
Vanadium	EPA200.7/SW6010	3	11	ug/L	11/09/90
Zinc	EPA200.7/SW6010	3	68	ug/L	11/09/90

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

Reviewed by: J Hawley

INRPRPT(v900202)

CH2M HILL
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REPORT OF ANALYTICAL RESULTS

Date: 11/21/90
Page: 5 of 7

Client: CH2M HILL/RDD
P.O. BOX 492478
REDDING, CA 96049

Atten: MR. MIKE SMITH

Project Number: RDD28361.A0.30
STATE LINE DUMP
Laboratory Number: 27985
Date Received: 10/31/90

Sample Description: MW4
Laboratory Sample Number: 27985005 Date Collected: 10/30/90 Matrix: WATER

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Silver	EPA200.7/SW6010	3	<3	ug/L	11/09/90
Aluminum	EPA200.7/SW6010	8	25	ug/L	11/09/90
Arsenic	EPA206.2/SW7060	0.5	<0.5	ug/L	11/08/90
Barium	EPA200.7/SW6010	1	3	ug/L	11/09/90
Beryllium	EPA200.7/SW6010	1	<1	ug/L	11/09/90
Calcium	EPA200.7/SW6010	50	21100	ug/L	11/09/90
Cadmium	EPA200.7/SW6010	1	<1	ug/L	11/09/90
Cobalt	EPA200.7/SW6010	4	<4	ug/L	11/09/90
Chromium	EPA200.7/SW6010	3	<3	ug/L	11/09/90
Copper	EPA200.7/SW6010	3	<3	ug/L	11/09/90
Dissolved Organic Carbon	EPA415.2	1.0	1.4	mg/L	11/16/90
Fluoride	EPA340.2	0.05	<0.05	mg/L	11/16/90
Iron	EPA200.7/SW6010	20	<20	ug/L	11/09/90
Mercury	EPA245.1/SW7470	0.2	<0.2	ug/L	11/04/90
Chloride	EPA300.0	0.085	2.58	mg/L	11/08/90
Sulfate	EPA300.0	0.050	4.03	mg/L	11/08/90
Potassium	EPA200.7/SW6010	350	2100	ug/L	11/09/90
Magnesium	EPA200.7/SW6010	24	11400	ug/L	11/09/90
Manganese	EPA200.7/SW6010	1	4	ug/L	11/09/90
Sodium	EPA200.7/SW6010	50	7680	ug/L	11/09/90
Nickel	EPA200.7/SW6010	6	<6	ug/L	11/09/90
Lead	EPA239.2/SW7421	0.8	0.8	ug/L	11/13/90
pH	EPA150.1	----	8.05	units	10/31/90
Antimony	EPA200.7/SW6010	10	<10	ug/L	11/09/90
Selenium	EPA270.2/SW7740	0.8	<0.8	ug/L	11/09/90
Total Dissolved Solids	EPA160.1	3	152	mg/L	11/03/90
Thallium	EPA279.2/SW7841	0.6	<0.6	ug/L	11/07/90
Total Organic Carbon	EPA415.2	1.0	<1.0	mg/L	11/16/90
Total Organic Halogen as CL-	SW9020	5.0	11	ug/L	11/09/90
Vanadium	EPA200.7/SW6010	3	10	ug/L	11/09/90
Zinc	EPA200.7/SW6010	3	113	ug/L	11/09/90

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

Reviewed by: Hawley

INRPRPT(v900202)

REPORT OF ANALYTICAL RESULTS

Date: 11/21/90
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Client: CH2M HILL/RDD
P.O. BOX 492478
REDDING, CA 96049

Atten: MR. MIKE SMITH

Project Number: RDD28361.A0.30
STATE LINE DUMP
Laboratory Number: 27985
Date Received: 10/31/90

Sample Description: MW5
Laboratory Sample Number: 27985006 Date Collected: 10/30/90 Matrix: WATER

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Silver	EPA200.7/SW6010	3	<3	ug/L	11/09/90
Aluminum	EPA200.7/SW6010	8	11	ug/L	11/09/90
Arsenic	EPA206.2/SW7060	0.5	<0.5	ug/L	11/08/90
Barium	EPA200.7/SW6010	1	<1	ug/L	11/09/90
Beryllium	EPA200.7/SW6010	1	<1	ug/L	11/09/90
Calcium	EPA200.7/SW6010	50	1940	ug/L	11/09/90
Cadmium	EPA200.7/SW6010	1	<1	ug/L	11/09/90
Cobalt	EPA200.7/SW6010	4	<4	ug/L	11/09/90
Chromium	EPA200.7/SW6010	3	<3	ug/L	11/09/90
Copper	EPA200.7/SW6010	3	<3	ug/L	11/09/90
Dissolved Organic Carbon	EPA415.2	1.0	<1.0	mg/L	11/16/90
Fluoride	EPA340.2	0.05	<0.05	mg/L	11/16/90
Iron	EPA200.7/SW6010	20	71	ug/L	11/09/90
Mercury	EPA245.1/SW7470	0.2	<0.2	ug/L	11/04/90
Chloride	EPA300.0	0.017	1.43	mg/L	11/08/90
Sulfate	EPA300.0	0.010	0.375	mg/L	11/08/90
Potassium	EPA200.7/SW6010	350	<350	ug/L	11/09/90
Magnesium	EPA200.7/SW6010	24	594	ug/L	11/09/90
Manganese	EPA200.7/SW6010	1	1	ug/L	11/09/90
Sodium	EPA200.7/SW6010	50	1080	ug/L	11/09/90
Nickel	EPA200.7/SW6010	6	<6	ug/L	11/09/90
Lead	EPA239.2/SW7421	0.8	<0.8	ug/L	11/13/90
pH	EPA150.1	----	7.61	units	10/31/90
Antimony	EPA200.7/SW6010	10	<10	ug/L	11/09/90
Selenium	EPA270.2/SW7740	0.8	<0.8	ug/L	11/09/90
Total Dissolved Solids	EPA160.1	3	7	mg/L	11/03/90
Thallium	EPA279.2/SW7841	0.6	<0.6	ug/L	11/07/90
Total Organic Carbon	EPA415.2	1.0	<1.0	mg/L	11/16/90
Total Organic Halogen as CL-	SW9020	5.0	<5.0	ug/L	11/09/90
Vanadium	EPA200.7/SW6010	3	<3	ug/L	11/09/90
Zinc	EPA200.7/SW6010	3	8	ug/L	11/09/90

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

Reviewed by: J Hawley

INRPRPT(v900202)

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REPORT OF ANALYTICAL RESULTS

Date: 11/21/90
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Client: CH2M HILL/RDD
P.O. BOX 492478
REDDING, CA 96049

Project Number: RDD28361.A0.30
STATE LINE DUMP
Laboratory Number: 27985
Date Received: 10/31/90

Atten: MR. MIKE SMITH

Sample Description: METHOD BLANK
Laboratory Sample Number: 27985ZW1 Date Collected: 10/31/90 Matrix: WATER BLANK

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Silver	EPA200.7/SW6010	3	<3	ug/L	11/09/90
Aluminum	EPA200.7/SW6010	8	<8	ug/L	11/09/90
Arsenic	EPA206.2/SW7060	0.5	<0.5	ug/L	11/08/90
Barium	EPA200.7/SW6010	1	<1	ug/L	11/09/90
Beryllium	EPA200.7/SW6010	1	<1	ug/L	11/09/90
Calcium	EPA200.7/SW6010	50	106	ug/L	11/09/90
Cadmium	EPA200.7/SW6010	1	<1	ug/L	11/09/90
Cobalt	EPA200.7/SW6010	4	<4	ug/L	11/09/90
Chromium	EPA200.7/SW6010	3	<3	ug/L	11/09/90
Copper	EPA200.7/SW6010	3	<3	ug/L	11/09/90
Dissolved Organic Carbon	EPA415.2	1.0	<1.0	mg/L	11/16/90
Fluoride	EPA340.2	0.05	<0.05	mg/L	11/16/90
Iron	EPA200.7/SW6010	20	<20	ug/L	11/09/90
Mercury	EPA245.1/SW7470	0.2	<0.2	ug/L	11/04/90
Chloride	EPA300.0	0.017	<0.017	mg/L	11/08/90
Sulfate	EPA300.0	0.010	<0.010	mg/L	11/08/90
Potassium	EPA200.7/SW6010	350	<350	ug/L	11/09/90
Magnesium	EPA200.7/SW6010	24	<24	ug/L	11/09/90
Manganese	EPA200.7/SW6010	1	<1	ug/L	11/09/90
Sodium	EPA200.7/SW6010	50	67	ug/L	11/09/90
Nickel	EPA200.7/SW6010	6	<6	ug/L	11/09/90
Lead	EPA239.2/SW7421	0.8	<0.8	ug/L	11/13/90
Antimony	EPA200.7/SW6010	10	<10	ug/L	11/09/90
Selenium	EPA270.2/SW7740	0.8	<0.8	ug/L	11/09/90
Thallium	EPA279.2/SW7841	0.6	<0.6	ug/L	11/07/90
Total Organic Carbon	EPA415.2	1.0	<1.0	mg/L	11/16/90
Total Organic Halogen as CL-	SW9020	2.8	<2.8	ug/L	11/09/90
Vanadium	EPA200.7/SW6010	3	<3	ug/L	11/09/90
Zinc	EPA200.7/SW6010	3	<3	ug/L	11/09/90

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

Reviewed by: J Hawley

INRPRPT(v900202)

CH2M HILL
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CASE NARRATIVE FOR VOLATILE GAS CHROMATOGRAPHY SAMPLES

LABORATORY: CH2M HILL

CLIENT : State Line Dump

CASE NO : N/A

CONTRACT NO.: N/A

LAB ID : 27985

SDG # : N/A

I. RECEIPT

A. Date: October 31, 1990

B.

LAB ID	CLIENT ID	SAMPLE MATRIX	DATE SAMPLED	EXTRACTION DATE	ANALYSIS DATE
27985001	MW1	WATER	10/29/90	N/A	11/08/90
27985002	MW2	WATER	10/30/90	N/A	11/08/90
27985003	MW3	WATER	10/30/90	N/A	11/08/90
27985004	MW3A	WATER	10/30/90	N/A	11/08/90
27985005	MW4	WATER	10/30/90	N/A	11/08/90
27985006	MW5	WATER	10/30/90	N/A	11/08/90

C. Documentation Exceptions : None encountered.

II. EXTRACTION

A. Holding Times: Medium level protocol was not performed, therefore, extraction time is not applicable.

B. Extraction Exceptions : Not applicable.

III. ANALYSIS

A. Holding Times: Holding time all met.

B. Analytical Exceptions : None encountered.

IV. QUALITY CONTROL

A. Method Blank : A method blank is a laboratory generated sample used to determine the degree to which laboratory operations may cause false positive results for these samples. No target parameters were detected in the method blank associate with these samples.

B. Surrogate Recoveries : All met QC requirements.

C. Matrix Spike Results: Not applicable.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature. Diskette deliverables have not been provided for this data package.

Warren Lee Kidd 11/21/90

Warren Lee Kidd **Date**
Orgainics Division Manager

kdh.d

Report of Analytical Data - Purgeable Halocarbons/Aromatics

Client: NA
Project: NA
Proj No: NA
Method: EPA 601/602
Matrix: Water
Sampler: NA

Laboratory: CH2M Hill/LRD
Lab Sample ID: Method Blank
% Moisture: 100.0
Dilution Factor: 1
Instrument ID: 3600

Date Sampled: NA
Date Received: NA
Date Extracted: NA
Date Analyzed: 11/08/90
Analyst: J.W.
Date Reported: 11/20/90

Client Sample ID/Description: NA

CAS Number	Compound	Reporting Limit	Sample Result	Confirmation Result	Reporting Units
74-87-3	Chloromethane	1.0	U	NR	ug/L
74-83-9	Bromomethane	1.0	U	NR	ug/L
75-71-8	Dichlorodifluoromethane	1.0	U	NR	ug/L
75-01-4	Vinyl chloride	1.0	U	NR	ug/L
75-00-3	Chloroethane	1.0	U	NR	ug/L
75-09-2	Dichloromethane	1.0	U	NR	ug/L
75-69-4	Trichlorofluoromethane	1.0	U	NR	ug/L
75-35-4	1,1-Dichloroethene	1.0	U	NR	ug/L
75-34-3	1,1-Dichloroethane	1.0	U	NR	ug/L
156-60-5	trans-1,2-Dichloroethene	1.0	U	NR	ug/L
67-66-3	Chloroform	1.0	U	NR	ug/L
107-06-2	1,2-Dichloroethane	1.0	U	NR	ug/L
71-55-6	1,1,1-Trichloroethane	1.0	U	NR	ug/L
56-23-5	Carbon tetrachloride	1.0	U	NR	ug/L
75-27-4	Bromodichloromethane	1.0	U	NR	ug/L
78-87-5	1,2-Dichloropropane	1.0	U	NR	ug/L
10061-01-5	cis-1,3-Dichloropropene	1.0	U	NR	ug/L
79-01-6	Trichloroethene	1.0	U	NR	ug/L
124-48-1	Dibromochloromethane	1.0	U	NR	ug/L
79-00-5	1,1,2-Trichloroethane	1.0	U	NR	ug/L
10061-02-6	trans-1,3-Dichloropropene	1.0	U	NR	ug/L
75-25-2	Bromoform	1.0	U	NR	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	NR	ug/L
127-18-4	Tetrachloroethene	1.0	U	NR	ug/L
108-90-7	Chlorobenzene	1.0	U	NR	ug/L
541-73-1	1,3-Dichlorobenzene	1.0	U	NR	ug/L
95-50-1	1,2-Dichlorobenzene	1.0	U	NR	ug/L
106-46-7	1,4-Dichlorobenzene	1.0	U	NR	ug/L
1634-04-4	tert-Butyl methyl ether	1.0	U	NR	ug/L
71-43-2	Benzene	1.0	U	NR	ug/L
108-88-3	Toluene	1.0	U	NR	ug/L
100-41-4	Ethylbenzene	1.0	U	NR	ug/L
1330-20-7	Total xylenes	1.0	U	NR	ug/L
110-56-5	1,4-Dichlorobutane-SS		98		% rec
1423-10-5	Fluorobenzene		100		% rec

U = Compound analyzed for but not detected.
SS = Surrogate Standard reported as percent recovery.
NR = Not Required. This sample was analyzed by a modified EPA 601/602 Method.

Comments:

Reviewed by: WLK

Report of Analytical Data - Purgeable Halocarbons/Aromatics

Client:	State Line Dump	Laboratory:	CH2M Hill/LRD	Date Sampled:	10/29/90
Project:	BLM	Lab Sample ID:	27985-1	Date Received:	10/31/90
Proj No:	RDD 28361.030	% Moisture:	NA	Date Extracted:	N/A
Method:	EPA 601/602	Dilution Factor:	1	Date Analyzed:	11/08/90
Matrix:	WATER	Instrument ID:	3600	Analyst:	J.W.
Sampler:	John Lueck			Date Reported:	11/20/90

Client Sample ID/Description: MW1

CAS Number	Compound	Reporting Limit	Sample Result	Confirmation Result	Reporting Units
74-87-3	Chloromethane	1.0	U	NR	ug/L
74-83-9	Bromomethane	1.0	U	NR	ug/L
75-71-8	Dichlorodifluoromethane	1.0	U	NR	ug/L
75-01-4	Vinyl chloride	1.0	U	NR	ug/L
75-00-3	Chloroethane	1.0	U	NR	ug/L
75-09-2	Dichloromethane	1.0	U	NR	ug/L
75-69-4	Trichlorofluoromethane	1.0	U	NR	ug/L
75-35-4	1,1-Dichloroethene	1.0	U	NR	ug/L
75-34-3	1,1-Dichloroethane	1.0	U	NR	ug/L
156-60-5	trans-1,2-Dichloroethene	1.0	U	NR	ug/L
67-66-3	Chloroform	1.0	U	NR	ug/L
107-06-2	1,2-Dichloroethane	1.0	U	NR	ug/L
71-55-6	1,1,1-Trichloroethane	1.0	U	NR	ug/L
56-23-5	Carbon tetrachloride	1.0	U	NR	ug/L
75-27-4	Bromodichloromethane	1.0	U	NR	ug/L
78-87-5	1,2-Dichloropropane	1.0	U	NR	ug/L
10061-01-5	cis-1,3-Dichloropropene	1.0	U	NR	ug/L
79-01-6	Trichloroethene	1.0	U	NR	ug/L
124-48-1	Dibromochloromethane	1.0	U	NR	ug/L
79-00-5	1,1,2-Trichloroethane	1.0	U	NR	ug/L
10061-02-6	trans-1,3-Dichloropropene	1.0	U	NR	ug/L
75-25-2	Bromoform	1.0	U	NR	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	NR	ug/L
127-18-4	Tetrachloroethene	1.0	U	NR	ug/L
108-90-7	Chlorobenzene	1.0	U	NR	ug/L
541-73-1	1,3-Dichlorobenzene	1.0	U	NR	ug/L
95-50-1	1,2-Dichlorobenzene	1.0	U	NR	ug/L
106-46-7	1,4-Dichlorobenzene	1.0	U	NR	ug/L
1634-04-4	tert-Butyl methyl ether	1.0	U	NR	ug/L
71-43-2	Benzene	1.0	U	NR	ug/L
108-88-3	Toluene	1.0	U	NR	ug/L
100-41-4	Ethylbenzene	1.0	U	NR	ug/L
1330-20-7	Total xylenes	1.0	U	NR	ug/L
110-56-5	1,4-Dichlorobutane-SS		88		% rec
1423-10-5	Fluorobenzene		130		% rec

U = Compound analyzed for but not detected.
SS = Surrogate Standard reported as percent recovery.
NR = Not Required. This sample was analyzed by a modified EPA 601/602 Method.

Comments:

Reviewed by: WLK

Report of Analytical Data - Purgeable Halocarbons/Aromatics

Client: State Line Dump
Project: BLM
Proj No: RDD 28361.030
Method: EPA 601/602
Matrix: WATER
Sampler: John Lueck

Laboratory: CH2M Hill/LRD
Lab Sample ID: 27985-2
% Moisture: NA
Dilution Factor: 1
Instrument ID: 3600

Date Sampled: 10/30/90
Date Received: 10/31/90
Date Extracted: N/A
Date Analyzed: 11/08/90
Analyst: J.W.
Date Reported: 11/20/90

Client Sample ID/Description: MW2

CAS Number	Compound	Reporting Limit	Sample Result	Confirmation Result	Reporting Units
74-87-3	Chloromethane	1.0	U	NR	ug/L
74-83-9	Bromomethane	1.0	U	NR	ug/L
75-71-8	Dichlorodifluoromethane	1.0	U	NR	ug/L
75-01-4	Vinyl chloride	1.0	U	NR	ug/L
75-00-3	Chloroethane	1.0	U	NR	ug/L
75-09-2	Dichloromethane	1.0	U	NR	ug/L
75-69-4	Trichlorofluoromethane	1.0	1.0	NR	ug/L
75-35-4	1,1-Dichloroethene	1.0	U	NR	ug/L
75-34-3	1,1-Dichloroethane	1.0	U	NR	ug/L
156-60-5	trans-1,2-Dichloroethene	1.0	U	NR	ug/L
67-66-3	Chloroform	1.0	U	NR	ug/L
107-06-2	1,2-Dichloroethane	1.0	U	NR	ug/L
71-55-6	1,1,1-Trichloroethane	1.0	U	NR	ug/L
56-23-5	Carbon tetrachloride	1.0	U	NR	ug/L
75-27-4	Bromodichloromethane	1.0	U	NR	ug/L
78-87-5	1,2-Dichloropropane	1.0	U	NR	ug/L
10061-01-5	cis-1,3-Dichloropropene	1.0	U	NR	ug/L
79-01-6	Trichloroethene	1.0	U	NR	ug/L
124-48-1	Dibromochloromethane	1.0	U	NR	ug/L
79-00-5	1,1,2-Trichloroethane	1.0	U	NR	ug/L
10061-02-6	trans-1,3-Dichloropropene	1.0	U	NR	ug/L
75-25-2	Bromoform	1.0	U	NR	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	NR	ug/L
127-18-4	Tetrachloroethene	1.0	U	NR	ug/L
108-90-7	Chlorobenzene	1.0	U	NR	ug/L
541-73-1	1,3-Dichlorobenzene	1.0	U	NR	ug/L
95-50-1	1,2-Dichlorobenzene	1.0	U	NR	ug/L
106-46-7	1,4-Dichlorobenzene	1.0	U	NR	ug/L
1634-04-4	tert-Butyl methyl ether	1.0	U	NR	ug/L
71-43-2	Benzene	1.0	U	NR	ug/L
108-88-3	Toluene	1.0	U	NR	ug/L
100-41-4	Ethylbenzene	1.0	U	NR	ug/L
1330-20-7	Total xylenes	1.0	U	NR	ug/L
110-56-5	1,4-Dichlorobutane-SS		104		% rec
1423-10-5	Fluorobenzene		127		% rec

U = Compound analyzed for but not detected.
SS = Surrogate Standard reported as percent recovery.
NR = Not Required. This sample was analyzed by a modified EPA 601/602 Method.

Comments:

Reviewed by: WLK

Report of Analytical Data - Purgeable Halocarbons/Aromatics

Client: State Line Dump
Project: BLM
Proj No: RDD 28361.030
Method: EPA 601/602
Matrix: WATER
Sampler: John Lueck

Laboratory: CH2M Hill/LRD
Lab Sample ID: 27985-3
% Moisture: NA
Dilution Factor: 1
Instrument ID: 3600

Date Sampled: 10/30/90
Date Received: 10/31/90
Date Extracted: N/A
Date Analyzed: 11/08/90
Analyst: J.W.
Date Reported: 11/20/90

Client Sample ID/Description: MW3

CAS Number	Compound	Reporting Limit	Sample Result	Confirmation Result	Reporting Units
74-87-3	Chloromethane	1.0	U	NR	ug/L
74-83-9	Bromomethane	1.0	U	NR	ug/L
75-71-8	Dichlorodifluoromethane	1.0	U	NR	ug/L
75-01-4	Vinyl chloride	1.0	U	NR	ug/L
75-00-3	Chloroethane	1.0	U	NR	ug/L
75-09-2	Dichloromethane	1.0	U	NR	ug/L
75-69-4	Trichlorofluoromethane	1.0	U	NR	ug/L
75-35-4	1,1-Dichloroethene	1.0	U	NR	ug/L
75-34-3	1,1-Dichloroethane	1.0	U	NR	ug/L
156-60-5	trans-1,2-Dichloroethene	1.0	U	NR	ug/L
67-66-3	Chloroform	1.0	U	NR	ug/L
107-06-2	1,2-Dichloroethane	1.0	U	NR	ug/L
71-55-6	1,1,1-Trichloroethane	1.0	U	NR	ug/L
56-23-5	Carbon tetrachloride	1.0	U	NR	ug/L
75-27-4	Bromodichloromethane	1.0	U	NR	ug/L
78-87-5	1,2-Dichloropropane	1.0	U	NR	ug/L
10061-01-5	cis-1,3-Dichloropropene	1.0	U	NR	ug/L
79-01-6	Trichloroethene	1.0	U	NR	ug/L
124-48-1	Dibromochloromethane	1.0	U	NR	ug/L
79-00-5	1,1,2-Trichloroethane	1.0	U	NR	ug/L
10061-02-6	trans-1,3-Dichloropropene	1.0	U	NR	ug/L
75-25-2	Bromoform	1.0	U	NR	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	NR	ug/L
127-18-4	Tetrachloroethene	1.0	U	NR	ug/L
108-90-7	Chlorobenzene	1.0	U	NR	ug/L
541-73-1	1,3-Dichlorobenzene	1.0	U	NR	ug/L
95-50-1	1,2-Dichlorobenzene	1.0	U	NR	ug/L
106-46-7	1,4-Dichlorobenzene	1.0	U	NR	ug/L
1634-04-4	tert-Butyl methyl ether	1.0	U	NR	ug/L
71-43-2	Benzene	1.0	U	NR	ug/L
108-88-3	Toluene	1.0	U	NR	ug/L
100-41-4	Ethylbenzene	1.0	U	NR	ug/L
1330-20-7	Total xylenes	1.0	U	NR	ug/L
110-56-5	1,4-Dichlorobutane-SS		107		% rec
1423-10-5	Fluorobenzene		114		% rec

U = Compound analyzed for but not detected.
SS = Surrogate Standard reported as percent recovery.
NR = Not Required. This sample was analyzed by a modified EPA 601/602 Method.

Comments:

Reviewed by: WLK

Report of Analytical Data - Purgeable Halocarbons/Aromatics

Client: State Line Dump
Project: BLM
Proj No: RDD 28361.030
Method: EPA 601/602
Matrix: WATER
Sampler: John Lueck

Laboratory: CH2M Hill/LRD
Lab Sample ID: 27985-4
% Moisture: NA
Dilution Factor: 1
Instrument ID: 3600

Date Sampled: 10/30/90
Date Received: 10/31/90
Date Extracted: N/A
Date Analyzed: 11/08/90
Analyst: J.W.
Date Reported: 11/20/90

Client Sample ID/Description: MW3A

CAS Number	Compound	Reporting Limit	Sample Result	Confirmation Result	Reporting Units
74-87-3	Chloromethane	1.0	U	NR	ug/L
74-83-9	Bromomethane	1.0	U	NR	ug/L
75-71-8	Dichlorodifluoromethane	1.0	U	NR	ug/L
75-01-4	Vinyl chloride	1.0	U	NR	ug/L
75-00-3	Chloroethane	1.0	U	NR	ug/L
75-09-2	Dichloromethane	1.0	1.0	NR	ug/L
75-69-4	Trichlorofluoromethane	1.0	U	NR	ug/L
75-35-4	1,1-Dichloroethene	1.0	U	NR	ug/L
75-34-3	1,1-Dichloroethane	1.0	U	NR	ug/L
156-60-5	trans-1,2-Dichloroethene	1.0	U	NR	ug/L
67-66-3	Chloroform	1.0	U	NR	ug/L
107-06-2	1,2-Dichloroethane	1.0	U	NR	ug/L
71-55-6	1,1,1-Trichloroethane	1.0	U	NR	ug/L
56-23-5	Carbon tetrachloride	1.0	U	NR	ug/L
75-27-4	Bromodichloromethane	1.0	U	NR	ug/L
78-87-5	1,2-Dichloropropane	1.0	U	NR	ug/L
10061-01-5	cis-1,3-Dichloropropene	1.0	U	NR	ug/L
79-01-6	Trichloroethene	1.0	U	NR	ug/L
124-48-1	Dibromochloromethane	1.0	U	NR	ug/L
79-00-5	1,1,2-Trichloroethane	1.0	U	NR	ug/L
10061-02-6	trans-1,3-Dichloropropene	1.0	U	NR	ug/L
75-25-2	Bromoform	1.0	U	NR	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	NR	ug/L
127-18-4	Tetrachloroethene	1.0	U	NR	ug/L
108-90-7	Chlorobenzene	1.0	U	NR	ug/L
541-73-1	1,3-Dichlorobenzene	1.0	U	NR	ug/L
95-50-1	1,2-Dichlorobenzene	1.0	U	NR	ug/L
106-46-7	1,4-Dichlorobenzene	1.0	U	NR	ug/L
1634-04-4	tert-Butyl methyl ether	1.0	U	NR	ug/L
71-43-2	Benzene	1.0	U	NR	ug/L
108-88-3	Toluene	1.0	U	NR	ug/L
100-41-4	Ethylbenzene	1.0	U	NR	ug/L
1330-20-7	Total xylenes	1.0	U	NR	ug/L
110-56-5	1,4-Dichlorobutane-SS		107		% rec
1423-10-5	Fluorobenzene		123		% rec

U = Compound analyzed for but not detected.
SS = Surrogate Standard reported as percent recovery.
NR = Not Required. This sample was analyzed by a modified EPA 601/602 Method.

Comments:

Reviewed by: WLK

Report of Analytical Data - Purgeable Halocarbons/Aromatics

Client: State Line Dump
Project: BLM
Proj No: RDD 28361.030
Method: EPA 601/602
Matrix: WATER
Sampler: John Lueck

Laboratory: CH2M Hill/LRD
Lab Sample ID: 27985-5
% Moisture: NA
Dilution Factor: 1
Instrument ID: 3600

Date Sampled: 10/30/90
Date Received: 10/31/90
Date Extracted: N/A
Date Analyzed: 11/08/90
Analyst: J.W.
Date Reported: 11/20/90

Client Sample ID/Description: MW4

CAS Number	Compound	Reporting Limit	Sample Result	Confirmation Result	Reporting Units
74-87-3	Chloromethane	1.0	U	NR	ug/L
74-83-9	Bromomethane	1.0	U	NR	ug/L
75-71-8	Dichlorodifluoromethane	1.0	U	NR	ug/L
75-01-4	Vinyl chloride	1.0	U	NR	ug/L
75-00-3	Chloroethane	1.0	U	NR	ug/L
75-09-2	Dichloromethane	1.0	2.3	NR	ug/L
75-69-4	Trichlorofluoromethane	1.0	U	NR	ug/L
75-35-4	1,1-Dichloroethene	1.0	U	NR	ug/L
75-34-3	1,1-Dichloroethane	1.0	U	NR	ug/L
156-60-5	trans-1,2-Dichloroethene	1.0	U	NR	ug/L
67-66-3	Chloroform	1.0	U	NR	ug/L
107-06-2	1,2-Dichloroethane	1.0	U	NR	ug/L
71-55-6	1,1,1-Trichloroethane	1.0	U	NR	ug/L
56-23-5	Carbon tetrachloride	1.0	U	NR	ug/L
75-27-4	Bromodichloromethane	1.0	U	NR	ug/L
78-87-5	1,2-Dichloropropane	1.0	U	NR	ug/L
10061-01-5	cis-1,3-Dichloropropene	1.0	U	NR	ug/L
79-01-6	Trichloroethene	1.0	U	NR	ug/L
124-48-1	Dibromochloromethane	1.0	U	NR	ug/L
79-00-5	1,1,2-Trichloroethane	1.0	U	NR	ug/L
10061-02-6	trans-1,3-Dichloropropene	1.0	U	NR	ug/L
75-25-2	Bromoform	1.0	U	NR	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	NR	ug/L
127-18-4	Tetrachloroethene	1.0	U	NR	ug/L
108-90-7	Chlorobenzene	1.0	U	NR	ug/L
541-73-1	1,3-Dichlorobenzene	1.0	U	NR	ug/L
95-50-1	1,2-Dichlorobenzene	1.0	U	NR	ug/L
106-46-7	1,4-Dichlorobenzene	1.0	U	NR	ug/L
1634-04-4	tert-Butyl methyl ether	1.0	U	NR	ug/L
71-43-2	Benzene	1.0	U	NR	ug/L
108-88-3	Toluene	1.0	U	NR	ug/L
100-41-4	Ethylbenzene	1.0	U	NR	ug/L
1330-20-7	Total xylenes	1.0	U	NR	ug/L
110-56-5	1,4-Dichlorobutane-SS		109		% rec
1423-10-5	Fluorobenzene		127		% rec

U = Compound analyzed for but not detected.
SS = Surrogate Standard reported as percent recovery.
NR = Not Required. This sample was analyzed by a modified EPA 601/602 Method.

Comments:

Reviewed by: WLK

Report of Analytical Data - Purgeable Halocarbons/Aromatics

Client: State Line Dump
Project: BLM
Proj No: RDD 28361.030
Method: EPA 601/602
Matrix: WATER
Sampler: John Lueck

Laboratory: CH2M Hill/LRD
Lab Sample ID: 27985-6
% Moisture: NA
Dilution Factor: 1
Instrument ID: 3600

Date Sampled: 10/30/90
Date Received: 10/31/90
Date Extracted: N/A
Date Analyzed: 11/08/90
Analyst: J.W.
Date Reported: 11/20/90

Client Sample ID/Description: MW5

CAS Number	Compound	Reporting Limit	Sample Result	Confirmation Result	Reporting Units
74-87-3	Chloromethane	1.0	U	NR	ug/L
74-83-9	Bromomethane	1.0	U	NR	ug/L
75-71-8	Dichlorodifluoromethane	1.0	U	NR	ug/L
75-01-4	Vinyl chloride	1.0	U	NR	ug/L
75-00-3	Chloroethane	1.0	U	NR	ug/L
75-09-2	Dichloromethane	1.0	1.0	NR	ug/L
75-69-4	Trichlorofluoromethane	1.0	U	NR	ug/L
75-35-4	1,1-Dichloroethene	1.0	U	NR	ug/L
75-34-3	1,1-Dichloroethane	1.0	U	NR	ug/L
156-60-5	trans-1,2-Dichloroethene	1.0	U	NR	ug/L
67-66-3	Chloroform	1.0	U	NR	ug/L
107-06-2	1,2-Dichloroethane	1.0	U	NR	ug/L
71-55-6	1,1,1-Trichloroethane	1.0	U	NR	ug/L
56-23-5	Carbon tetrachloride	1.0	U	NR	ug/L
75-27-4	Bromodichloromethane	1.0	U	NR	ug/L
78-87-5	1,2-Dichloropropane	1.0	U	NR	ug/L
10061-01-5	cis-1,3-Dichloropropene	1.0	U	NR	ug/L
79-01-6	Trichloroethene	1.0	U	NR	ug/L
124-48-1	Dibromochloromethane	1.0	U	NR	ug/L
79-00-5	1,1,2-Trichloroethane	1.0	U	NR	ug/L
10061-02-6	trans-1,3-Dichloropropene	1.0	U	NR	ug/L
75-25-2	Bromoform	1.0	U	NR	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	NR	ug/L
127-18-4	Tetrachloroethene	1.0	U	NR	ug/L
108-90-7	Chlorobenzene	1.0	U	NR	ug/L
541-73-1	1,3-Dichlorobenzene	1.0	U	NR	ug/L
95-50-1	1,2-Dichlorobenzene	1.0	U	NR	ug/L
106-46-7	1,4-Dichlorobenzene	1.0	U	NR	ug/L
1634-04-4	tert-Butyl methyl ether	1.0	U	NR	ug/L
71-43-2	Benzene	1.0	U	NR	ug/L
108-88-3	Toluene	1.0	U	NR	ug/L
100-41-4	Ethylbenzene	1.0	U	NR	ug/L
1330-20-7	Total xylenes	1.0	U	NR	ug/L
110-56-5	1,4-Dichlorobutane-SS		106		% rec
1423-10-5	Fluorobenzene		128		% rec

U = Compound analyzed for but not detected.
SS = Surrogate Standard reported as percent recovery.
NR = Not Required. This sample was analyzed by a modified EPA 601/602 Method.

Comments:

Reviewed by: WLK

CASE NARRATIVE FOR PHENOLS

LABORATORY:	CH2M HILL	**CLIENT** :	B.L.M./Stateline Dump
CASE NO :	N/A	**CONTRACT NO.:**	N/A
LAB ID :	27985	**SDG #** :	N/A

I. RECEIPT

A. Date: October 31, 1990

B.

LAB ID	CLIENT ID	SAMPLE MATRIX	DATE SAMPLED	EXTRACTION DATE	ANALYSIS DATE
27985001	MW1	Water	10/29/90	11/1/90	11/13/90
27985002	MW2	Water	10/30/90	11/2/90	11/12/90
27985003	MW3	Water	10/30/90	11/2/90	11/12/90
27985004	MW3A	Water	10/30/90	11/2/90	11/12/90
27985005	MW4	Water	10/30/90	11/2/90	11/12/90
27985006	MW5	Water	10/30/90	11/2/90	11/13/90

C. Documentation Exceptions : None encountered.

II. EXTRACTION

A. Holding Times: Holding times were met.

B. Extraction Exceptions : None encountered.

III. ANALYSIS

A. Holding Times: Holding times were met.

B. Analytical Exceptions : None encountered.

jas20

IV. QUALITY CONTROL

A.	Method Blank :	A method blank is a laboratory generated sample used to determine the degree to which laboratory operations may cause false positive results for these samples. No target parameters were detected in the method blanks associated with these samples.
B.	Surrogate Recoveries :	Met acceptable QC criteria.
C.	Matrix Spike Results:	Not applicable.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature. Diskette deliverables have not been provided for this data package.

Greg Jordan 11/28/90

Greg Jordan **Date**
GC Section Supervisor

WLK 11/28/90

METHOD: EPA 604 (Phenols)

Sample Matrix: Water
Dilution Factor: 1

Reference No: Method Blank

Date Extracted: 11-01-90
Date Analyzed: 11-12-90

Compounds	Detection Limit	Method Blank Result	Units
Phenol	10	< 10	ug/l
2-Chlorophenol	10	< 10	ug/l
2-Nitrophenol	10	< 10	ug/l
2,4-Dimethylphenol	10	< 10	ug/l
2,4-Dichlorophenol	10	< 10	ug/l
4-Chloro-3-methylphenol	10	< 10	ug/l
2,4,6-Trichlorophenol	10	< 10	ug/l
2,4-Dinitrophenol	10	< 10	ug/l
4-Nitrophenol	10	< 10	ug/l
2-Methyl-4,6-dinitrophenol	10	< 10	ug/l
Pentachlorophenol	10	< 10	ug/l
Surrogate (SS-1)		56	% Rec.
Surrogate (SS-2)		64	% Rec.

SS - Surrogate Standard reported as percent recovery.
(SS-1) - 2-Fluorophenol used as surrogate standard.
(SS-2) - 2,4,6-Tribromophenol used as surrogate standard.

Comments:

Approved By:

METHOD: EPA 604 (Phenols)

Reference No: Method Blank

Sample Matrix: Water
Dilution Factor: 1

Date Extracted: 11-02-90
Date Analyzed: 11-12-90

Compounds	Detection Limit	Method Blank Result	Units
Phenol	10	< 10	ug/l
2-Chlorophenol	10	< 10	ug/l
2-Nitrophenol	10	< 10	ug/l
2,4-Dimethylphenol	10	< 10	ug/l
2,4-Dichlorophenol	10	< 10	ug/l
4-Chloro-3-methylphenol	10	< 10	ug/l
2,4,6-Trichlorophenol	10	< 10	ug/l
2,4-Dinitrophenol	10	< 10	ug/l
4-Nitrophenol	10	< 10	ug/l
2-Methyl-4,6-dinitrophenol	10	< 10	ug/l
Pentachlorophenol	10	< 10	ug/l
Surrogate (SS-1)		53	% Rec.
Surrogate (SS-2)		76	% Rec.

SS - Surrogate Standard reported as percent recovery.
(SS-1) - 2-Fluorophenol used as surrogate standard.
(SS-2) - 2,4,6-Tribromophenol used as surrogate standard.

Comments:

Approved By:

CH2M HILL
Engineers
Planners
Economists
Scientists

METHOD: EPA 604 (Phenols)

Client: BLM/Stateline Dump
Client Sample ID: MW1

Sample Matrix: Water
Dilution Factor: 1

Reference No: 27985-1

Date Sampled: 10-29-90
Date Received: 10-31-90
Date Extracted: 11-01-90
Date Analyzed: 11-13-90

Compounds	Detection Limit	Sample Result	Units
Phenol	10	< 10	ug/l
2-Chlorophenol	10	< 10	ug/l
2-Nitrophenol	10	< 10	ug/l
2,4-Dimethylphenol	10	< 10	ug/l
2,4-Dichlorophenol	10	< 10	ug/l
4-Chloro-3-methylphenol	10	< 10	ug/l
2,4,6-Trichlorophenol	10	< 10	ug/l
2,4-Dinitrophenol	10	< 10	ug/l
4-Nitrophenol	10	< 10	ug/l
2-Methyl-4,6-dinitrophenol	10	< 10	ug/l
Pentachlorophenol	10	< 10	ug/l
Surrogate (SS-1)		31	% Rec.
Surrogate (SS-2)		55	% Rec.

SS - Surrogate Standard reported as percent recovery.
(SS-1) - 2-Fluorophenol used as surrogate standard.
(SS-2) - 2,4,6-Tribromophenol used as surrogate standard.

Comments:

Approved By: Greg Jordan

METHOD: EPA 604 (Phenols)

Client: BLM/Stateline Dump
Client Sample ID: MW2

Sample Matrix: Water
Dilution Factor: 1

Reference No: 27985-2

Date Sampled: 10-30-90
Date Received: 10-31-90
Date Extracted: 11-02-90
Date Analyzed: 11-12-90

Compounds	Detection Limit	Sample Result	Units
Phenol	10	< 10	ug/l
2-Chlorophenol	10	< 10	ug/l
2-Nitrophenol	10	< 10	ug/l
2,4-Dimethylphenol	10	< 10	ug/l
2,4-Dichlorophenol	10	< 10	ug/l
4-Chloro-3-methylphenol	10	< 10	ug/l
2,4,6-Trichlorophenol	10	< 10	ug/l
2,4-Dinitrophenol	10	< 10	ug/l
4-Nitrophenol	10	< 10	ug/l
2-Methyl-4,6-dinitrophenol	10	< 10	ug/l
Pentachlorophenol	10	< 10	ug/l
Surrogate (SS-1)		56	% Rec.
Surrogate (SS-2)		75	% Rec.

SS - Surrogate Standard reported as percent recovery.
(SS-1) - 2-Fluorophenol used as surrogate standard.
(SS-2) - 2,4,6-Tribromophenol used as surrogate standard.

Comments:

Approved By: Greg Jordan

jas20

METHOD: EPA 604 (Phenols)

Client: BLM/Stateline Dump
Client Sample ID: MW3

Reference No: 27985-3

Date Sampled: 10-30-90
Date Received: 10-31-90
Date Extracted: 11-02-90
Date Analyzed: 11-12-90

Sample Matrix: Water
Dilution Factor: 1

Compounds	Detection Limit	Sample Result	Units
Phenol	10	< 10	ug/l
2-Chlorophenol	10	< 10	ug/l
2-Nitrophenol	10	< 10	ug/l
2,4-Dimethylphenol	10	< 10	ug/l
2,4-Dichlorophenol	10	< 10	ug/l
4-Chloro-3-methylphenol	10	< 10	ug/l
2,4,6-Trichlorophenol	10	< 10	ug/l
2,4-Dinitrophenol	10	< 10	ug/l
4-Nitrophenol	10	< 10	ug/l
2-Methyl-4,6-dinitrophenol	10	< 10	ug/l
Pentachlorophenol	10	< 10	ug/l
Surrogate (SS-1)		61	% Rec.
Surrogate (SS-2)		80	% Rec.

SS - Surrogate Standard reported as percent recovery.
(SS-1) - 2-Fluorophenol used as surrogate standard.
(SS-2) - 2,4,6-Tribromophenol used as surrogate standard.

Comments:

Approved By: Greg Jordan

CH2M HILL
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Economists
Scientists

METHOD: EPA 604 (Phenols)

Client:	BLM/Stateline Dump	Reference No:	27985-4
Client Sample ID:	MW3A		
		Date Sampled:	10-30-90
		Date Received:	10-31-90
Sample Matrix:	Water	Date Extracted:	11-02-90
Dilution Factor:	1	Date Analyzed:	11-12-90

Compounds	Detection Limit	Sample Result	Units
Phenol	10	< 10	ug/l
2-Chlorophenol	10	< 10	ug/l
2-Nitrophenol	10	< 10	ug/l
2,4-Dimethylphenol	10	< 10	ug/l
2,4-Dichlorophenol	10	< 10	ug/l
4-Chloro-3-methylphenol	10	< 10	ug/l
2,4,6-Trichlorophenol	10	< 10	ug/l
2,4-Dinitrophenol	10	< 10	ug/l
4-Nitrophenol	10	< 10	ug/l
2-Methyl-4,6-dinitrophenol	10	< 10	ug/l
Pentachlorophenol	10	< 10	ug/l
Surrogate (SS-1)		51	% Rec.
Surrogate (SS-2)		75	% Rec.

SS - Surrogate Standard reported as percent recovery.
(SS-1) - 2-Fluorophenol used as surrogate standard.
(SS-2) - 2,4,6-Tribromophenol used as surrogate standard.

Comments:

Approved By:

jas20

CH2M HILL
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METHOD: EPA 604 (Phenols)

Client: BLM/Stateline Dump
Client Sample ID: MW4

Sample Matrix: Water
Dilution Factor: 1

Reference No: 27985-5

Date Sampled: 10-30-90
Date Received: 10-31-90
Date Extracted: 11-02-90
Date Analyzed: 11-12-90

Compounds	Detection Limit	Sample Result	Units
Phenol	10	< 10	ug/l
2-Chlorophenol	10	< 10	ug/l
2-Nitrophenol	10	< 10	ug/l
2,4-Dimethylphenol	10	< 10	ug/l
2,4-Dichlorophenol	10	< 10	ug/l
4-Chloro-3-methylphenol	10	< 10	ug/l
2,4,6-Trichlorophenol	10	< 10	ug/l
2,4-Dinitrophenol	10	< 10	ug/l
4-Nitrophenol	10	< 10	ug/l
2-Methyl-4,6-dinitrophenol	10	< 10	ug/l
Pentachlorophenol	10	< 10	ug/l
Surrogate (SS-1)		49	% Rec.
Surrogate (SS-2)		77	% Rec.

SS - Surrogate Standard reported as percent recovery.
(SS-1) - 2-Fluorophenol used as surrogate standard.
(SS-2) - 2,4,6-Tribromophenol used as surrogate standard.

Comments:

Approved By:

jas20

METHOD: EPA 604 (Phenols)

Client: BLM/Stateline Dump
Client Sample ID: MW5

Reference No: 27985-6

Date Sampled: 10-30-90
Date Received: 10-31-90
Date Extracted: 11-02-90
Date Analyzed: 11-13-90

Sample Matrix: Water
Dilution Factor: 1

Compounds	Detection Limit	Sample Result	Units
Phenol	10	< 10	ug/l
2-Chlorophenol	10	< 10	ug/l
2-Nitrophenol	10	< 10	ug/l
2,4-Dimethylphenol	10	< 10	ug/l
2,4-Dichlorophenol	10	< 10	ug/l
4-Chloro-3-methylphenol	10	< 10	ug/l
2,4,6-Trichlorophenol	10	< 10	ug/l
2,4-Dinitrophenol	10	< 10	ug/l
4-Nitrophenol	10	< 10	ug/l
2-Methyl-4,6-dinitrophenol	10	< 10	ug/l
Pentachlorophenol	10	< 10	ug/l
Surrogate (SS-1)		50	% Rec.
Surrogate (SS-2)		75	% Rec.

SS - Surrogate Standard reported as percent recovery.
(SS-1) - 2-Fluorophenol used as surrogate standard.
(SS-2) - 2,4,6-Tribromophenol used as surrogate standard.

Comments:

Approved By: Greg Jordan

CH2M HILL
Engineers
Planners
Economists
Scientists

CASE NARRATIVE FOR CLP PESTICIDES

LABORATORY:	CH2M HILL	**CLIENT :**	STATELINE DUMP
CASE NO :	N/A	**CONTRACT NO.:**	N/A
LAB ID :	27985	**SDG # :**	N/A

I. RECEIPT

A. Date: October 31, 1990

B.

LAB ID	CLIENT ID	SAMPLE MATRIX	DATE SAMPLED	EXTRACTION DATE	ANALYSIS DATE
27985001	MW1	Water	10/29/90	11/02/90	11/18/90
27985002	MW2	Water	10/30/90	11/02/90	11/18/90
27985003	MW3	Water	10/30/90	11/02/90	11/18/90
27985004	MW3A	Water	10/30/90	11/02/90	11/18/90
27985005	MW4	Water	10/30/90	11/02/90	11/18/90
27985006	MW5	Water	10/30/90	11/02/90	11/18/90

C. Documentation Exceptions : None encountered.

II. EXTRACTION

A. Holding Times: All holding times were met.

B. Extraction Exceptions : None encountered.

III. ANALYSIS

A. Holding Times: All holding times were met.

B. Analytical Exceptions : None encountered.

IV. QUALITY CONTROL

A. Method Blank : A method blank is a laboratory generated sample used to determine the degree to which laboratory operations may cause false positive results for this sample. No target parameters were detected in the method blank associated with these samples.

B. Surrogate Recoveries : All samples met acceptable QC criteria.

C. Matrix Spike Results: Not applicable.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature. Diskette deliverables have not been provided for this data package.

11/19/96

for **Greg Jordan**
GC Section Supervisor

Date

kdh.D

METHOD: 608
CLP Pesticides

Reference No: Method Blank

Sample Matrix: Water

Date Extracted: 11-02-90

Dilution Factor: 1

Date Analyzed: 11-18-90

Compounds	Detection Limit	Method Blank Result	Units
Aldrin	0.04	< 0.04	ug/l
a-BHC	0.03	< 0.03	ug/l
b-BHC	0.05	< 0.05	ug/l
g-BHC	0.04	< 0.04	ug/l
d-BHC	0.05	< 0.05	ug/l
4,4'-DDD	0.10	< 0.10	ug/l
4,4'-DDE	0.04	< 0.04	ug/l
4,4'-DDT	0.10	< 0.10	ug/l
Dieldrin	0.02	< 0.02	ug/l
Endosulfan I	0.05	< 0.05	ug/l
Endosulfan II	0.04	< 0.04	ug/l
Endosulfan Sulfate	0.10	< 0.10	ug/l
Endrin	0.06	< 0.06	ug/l
Endrin Ketone	0.10	< 0.10	ug/l
Heptachlor	0.03	< 0.03	ug/l
Heptachlor Epoxide	0.05	< 0.05	ug/l
4,4'-Methoxychlor	0.50	< 0.50	ug/l
Toxaphene	1.00	< 1.00	ug/l
PCB 1016	0.50	< 0.50	ug/l
PCB 1221	1.20	< 1.20	ug/l
PCB 1232	1.20	< 1.20	ug/l
PCB 1242	0.50	< 0.20	ug/l
PCB 1248	0.20	< 0.20	ug/l
PCB 1254	0.20	< 0.20	ug/l
PCB 1260	0.20	< 0.20	ug/l
a-Chlordane	0.05	< 0.05	ug/l
g-Chlordane	0.05	< 0.05	ug/l
Surrogate (SS)		123	% Rec.

(SS) - Surrogate Standard reported as percent recovery.
Dibutyl Chlorendate used as surrogate standard.

Comments:

Approved By: WLK

METHOD: 608
CLP Pesticides

Client: Stateline Dump
Client Sample ID: MW1

Reference No: 27985-1

Date Sampled: 10-29-90
Date Received: 10-31-90
Date Extracted: 11-02-90
Date Analyzed: 11-18-90

Sample Matrix: Water
Dilution Factor: 1

Compounds	Detection Limit	Sample Result	Units
Aldrin	0.04	< 0.04	ug/l
a-BHC	0.03	< 0.03	ug/l
b-BHC	0.05	< 0.05	ug/l
g-BHC	0.04	< 0.04	ug/l
d-BHC	0.05	< 0.05	ug/l
4,4'-DDD	0.10	< 0.10	ug/l
4,4'-DDE	0.04	< 0.04	ug/l
4,4'-DDT	0.10	< 0.10	ug/l
Dieldrin	0.02	< 0.02	ug/l
Endosulfan I	0.05	< 0.05	ug/l
Endosulfan II	0.04	< 0.04	ug/l
Endosulfan Sulfate	0.10	< 0.10	ug/l
Endrin	0.06	< 0.06	ug/l
Endrin Ketone	0.10	< 0.10	ug/l
Heptachlor	0.03	< 0.03	ug/l
Heptachlor Epoxide	0.05	< 0.05	ug/l
4,4'-Methoxychlor	0.50	< 0.50	ug/l
Toxaphene	1.00	< 1.00	ug/l
PCB 1016	0.50	< 0.50	ug/l
PCB 1221	1.20	< 1.20	ug/l
PCB 1232	1.20	< 1.20	ug/l
PCB 1242	0.50	< 0.20	ug/l
PCB 1248	0.20	< 0.20	ug/l
PCB 1254	0.20	< 0.20	ug/l
PCB 1260	0.20	< 0.20	ug/l
a-Chlordane	0.05	< 0.05	ug/l
g-Chlordane	0.05	< 0.05	ug/l
Surrogate (SS)		127	% Rec.

(SS) - Surrogate Standard reported as percent recovery.
Dibutyl Chlorendate used as surrogate standard.

Comments:

Approved By: WLK

CH2M HILL Engineers
Planners
Economists
Scientists

METHOD: 608
CLP Pesticides

Client: Stateline Dump	Reference No: 27985-2
Client Sample ID: MW2	
	Date Sampled: 10-30-90
	Date Received: 10-31-90
Sample Matrix: Water	Date Extracted: 11-02-90
Dilution Factor: 1	Date Analyzed: 11-18-90

Compounds	Detection Limit	Sample Result	Units
Aldrin	0.04	< 0.04	ug/l
a-BHC	0.03	< 0.03	ug/l
b-BHC	0.05	< 0.05	ug/l
g-BHC	0.04	< 0.04	ug/l
d-BHC	0.05	< 0.05	ug/l
4,4'-DDD	0.10	< 0.10	ug/l
4,4'-DDE	0.04	< 0.04	ug/l
4,4'-DDT	0.10	< 0.10	ug/l
Dieldrin	0.02	< 0.02	ug/l
Endosulfan I	0.05	< 0.05	ug/l
Endosulfan II	0.04	< 0.04	ug/l
Endosulfan Sulfate	0.10	< 0.10	ug/l
Endrin	0.06	< 0.06	ug/l
Endrin Ketone	0.10	< 0.10	ug/l
Heptachlor	0.03	< 0.03	ug/l
Heptachlor Epoxide	0.05	< 0.05	ug/l
4,4'-Methoxychlor	0.50	< 0.50	ug/l
Toxaphene	1.00	< 1.00	ug/l
PCB 1016	0.50	< 0.50	ug/l
PCB 1221	1.20	< 1.20	ug/l
PCB 1232	1.20	< 1.20	ug/l
PCB 1242	0.50	< 0.20	ug/l
PCB 1248	0.20	< 0.20	ug/l
PCB 1254	0.20	< 0.20	ug/l
PCB 1260	0.20	< 0.20	ug/l
a-Chlordane	0.05	< 0.05	ug/l
g-Chlordane	0.05	< 0.05	ug/l
Surrogate (SS)		127	% Rec.

(SS) - Surrogate Standard reported as percent recovery.
Dibutyl Chlorendate used as surrogate standard.

Comments:

Approved By: WLK

CH2M HILL
Engineers
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METHOD: 608
CLP Pesticides

Client: Stateline Dump
Client Sample ID: MW3

Reference No: 27985-3

Date Sampled: 10-30-90
Date Received: 10-31-90
Date Extracted: 11-02-90
Date Analyzed: 11-18-90

Sample Matrix: Water
Dilution Factor: 1

Compounds	Detection Limit	Sample Result	Units
Aldrin	0.04	< 0.04	ug/l
a-BHC	0.03	< 0.03	ug/l
b-BHC	0.05	< 0.05	ug/l
g-BHC	0.04	< 0.04	ug/l
d-BHC	0.05	< 0.05	ug/l
4,4'-DDD	0.10	< 0.10	ug/l
4,4'-DDE	0.04	< 0.04	ug/l
4,4'-DDT	0.10	< 0.10	ug/l
Dieldrin	0.02	< 0.02	ug/l
Endosulfan I	0.05	< 0.05	ug/l
Endosulfan II	0.04	< 0.04	ug/l
Endosulfan Sulfate	0.10	< 0.10	ug/l
Endrin	0.06	< 0.06	ug/l
Endrin Ketone	0.10	< 0.10	ug/l
Heptachlor	0.03	< 0.03	ug/l
Heptachlor Epoxide	0.05	< 0.05	ug/l
4,4'-Methoxychlor	0.50	< 0.50	ug/l
Toxaphene	1.00	< 1.00	ug/l
PCB 1016	0.50	< 0.50	ug/l
PCB 1221	1.20	< 1.20	ug/l
PCB 1232	1.20	< 1.20	ug/l
PCB 1242	0.50	< 0.20	ug/l
PCB 1248	0.20	< 0.20	ug/l
PCB 1254	0.20	< 0.20	ug/l
PCB 1260	0.20	< 0.20	ug/l
a-Chlordane	0.05	< 0.05	ug/l
g-Chlordane	0.05	< 0.05	ug/l

Surrogate (SS)		9	% Rec.

(SS) - Surrogate Standard reported as percent recovery.
Dibutyl Chlorendate used as surrogate standard.

Comments:

Approved By: WLK

CH2M HILL
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METHOD: 608
CLP Pesticides

Client: Stateline Dump
Client Sample ID: MW3A

Sample Matrix: Water
Dilution Factor: 1

Reference No: 27985-4

Date Sampled: 10-30-90
Date Received: 10-31-90
Date Extracted: 11-02-90
Date Analyzed: 11-18-90

Compounds	Detection Limit	Sample Result	Units
Aldrin	0.04	< 0.04	ug/l
a-BHC	0.03	< 0.03	ug/l
b-BHC	0.05	< 0.05	ug/l
g-BHC	0.04	< 0.04	ug/l
d-BHC	0.05	< 0.05	ug/l
4,4'-DDD	0.10	< 0.10	ug/l
4,4'-DDE	0.04	< 0.04	ug/l
4,4'-DDT	0.10	< 0.10	ug/l
Dieldrin	0.02	< 0.02	ug/l
Endosulfan I	0.05	< 0.05	ug/l
Endosulfan II	0.04	< 0.04	ug/l
Endosulfan Sulfate	0.10	< 0.10	ug/l
Endrin	0.06	< 0.06	ug/l
Endrin Ketone	0.10	< 0.10	ug/l
Heptachlor	0.03	< 0.03	ug/l
Heptachlor Epoxide	0.05	< 0.05	ug/l
4,4'-Methoxychlor	0.50	< 0.50	ug/l
Toxaphene	1.00	< 1.00	ug/l
PCB 1016	0.50	< 0.50	ug/l
PCB 1221	1.20	< 1.20	ug/l
PCB 1232	1.20	< 1.20	ug/l
PCB 1242	0.50	< 0.20	ug/l
PCB 1248	0.20	< 0.20	ug/l
PCB 1254	0.20	< 0.20	ug/l
PCB 1260	0.20	< 0.20	ug/l
a-Chlordane	0.05	< 0.05	ug/l
g-Chlordane	0.05	< 0.05	ug/l

Surrogate (SS)		126	% Rec.

(SS) - Surrogate Standard reported as percent recovery.
Dibutyl Chlorendate used as surrogate standard.

Comments:

Approved By: WLK

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METHOD: 608
CLP Pesticides

Client: Stateline Dump
Client Sample ID: MW4

Sample Matrix: Water
Dilution Factor: 1

Reference No: 27985-5

Date Sampled: 10-30-90
Date Received: 10-31-90
Date Extracted: 11-02-90
Date Analyzed: 11-18-90

Compounds	Detection Limit	Sample Result	Units
Aldrin	0.04	< 0.04	ug/l
a-BHC	0.03	< 0.03	ug/l
b-BHC	0.05	< 0.05	ug/l
g-BHC	0.04	< 0.04	ug/l
d-BHC	0.05	< 0.05	ug/l
4,4'-DDD	0.10	< 0.10	ug/l
4,4'-DDE	0.04	< 0.04	ug/l
4,4'-DDT	0.10	< 0.10	ug/l
Dieldrin	0.02	< 0.02	ug/l
Endosulfan I	0.05	< 0.05	ug/l
Endosulfan II	0.04	< 0.04	ug/l
Endosulfan Sulfate	0.10	< 0.10	ug/l
Endrin	0.06	< 0.06	ug/l
Endrin Ketone	0.10	< 0.10	ug/l
Heptachlor	0.03	< 0.03	ug/l
Heptachlor Epoxide	0.05	< 0.05	ug/l
4,4'-Methoxychlor	0.50	< 0.50	ug/l
Toxaphene	1.00	< 1.00	ug/l
PCB 1016	0.50	< 0.50	ug/l
PCB 1221	1.20	< 1.20	ug/l
PCB 1232	1.20	< 1.20	ug/l
PCB 1242	0.50	< 0.20	ug/l
PCB 1248	0.20	< 0.20	ug/l
PCB 1254	0.20	< 0.20	ug/l
PCB 1260	0.20	< 0.20	ug/l
a-Chlordane	0.05	< 0.05	ug/l
g-Chlordane	0.05	< 0.05	ug/l
Surrogate (SS)		118	% Rec.

(SS) - Surrogate Standard reported as percent recovery.
Dibutyl Chlorendate used as surrogate standard.

Comments:

Approved By: WLK

METHOD: 608
CLP Pesticides

Client: Stateline Dump
Client Sample ID: MW5

Sample Matrix: Water
Dilution Factor: 1

Reference No: 27985-6

Date Sampled: 10-30-90
Date Received: 10-31-90
Date Extracted: 11-02-90
Date Analyzed: 11-18-90

Compounds	Detection Limit	Sample Result	Units
Aldrin	0.04	< 0.04	ug/l
a-BHC	0.03	< 0.03	ug/l
b-BHC	0.05	< 0.05	ug/l
g-BHC	0.04	< 0.04	ug/l
d-BHC	0.05	< 0.05	ug/l
4,4'-DDD	0.10	< 0.10	ug/l
4,4'-DDE	0.04	< 0.04	ug/l
4,4'-DDT	0.10	< 0.10	ug/l
Dieldrin	0.02	< 0.02	ug/l
Endosulfan I	0.05	< 0.05	ug/l
Endosulfan II	0.04	< 0.04	ug/l
Endosulfan Sulfate	0.10	< 0.10	ug/l
Endrin	0.06	< 0.06	ug/l
Endrin Ketone	0.10	< 0.10	ug/l
Heptachlor	0.03	< 0.03	ug/l
Heptachlor Epoxide	0.05	< 0.05	ug/l
4,4'-Methoxychlor	0.50	< 0.50	ug/l
Toxaphene	1.00	< 1.00	ug/l
PCB 1016	0.50	< 0.50	ug/l
PCB 1221	1.20	< 1.20	ug/l
PCB 1232	1.20	< 1.20	ug/l
PCB 1242	0.50	< 0.20	ug/l
PCB 1248	0.20	< 0.20	ug/l
PCB 1254	0.20	< 0.20	ug/l
PCB 1260	0.20	< 0.20	ug/l
a-Chlordane	0.05	< 0.05	ug/l
g-Chlordane	0.05	< 0.05	ug/l
Surrogate (SS)		100	% Rec.

(SS) - Surrogate Standard reported as percent recovery. Dibutyl Chlorendate used as surrogate standard.

Comments:

Approved By: WLK

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November 19, 1990

RDD28361.A0.30

Mr. Darrell Lance
CH2M HILL/LRD
5090 Caterpillar Road
Redding, CA 96003

RE: Analytical Data for BLM Stateline Dump, Laboratory No. 17146

Dear Mr. Lance:

On November 2, 1990, the CH2M Hill Montgomery Laboratory received six samples with a request for analysis of selected organic parameters.

The analytical results and associated quality control data are enclosed. No unusual difficulties were encountered during the analysis of these samples.

If you should have any questions concerning the data, please inquire.

Sincerely,

Herb Kelly

Herb Kelly
Organics Division Manager

Enclosures

cc: Mr. Craig Vinson

WCK 11/21/90

CH2M HILL Quality Analytical Laboratories 2567 Fairlane Drive, P.O. Box 230548, Montgomery, Alabama 36116 205.271.1444

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ANALYTICAL METHODOLOGY

Organic Analysis

Priority Pollutants: Water, soil and waste samples are analyzed in accordance with procedures described in Methods 608, 624, and 625, EPA-600/4-82-057 (1982); Methods 8080, 8240, and 8270, Test Methods for Evaluating Solid Waste, 1986, SW-846, Third Edition; and methods outlined in the USEPA Contract Laboratory Program Statement of Work for Organics Analysis, February, 1988.

Volatile Analysis (Safe Drinking Water Act): Water samples are analyzed in accordance with procedures described in Method 524.2, Federal Register (50 FR 46902), November 13, 1985.

Chlorinated Phenoxyacid Herbicides: Samples are analyzed with procedures described in Method 8150, Test Methods for Evaluating Solid Waste, 1986, SW-846, Third Edition.

Organophosphate Pesticides: Samples are analyzed in accordance with procedures described in Methods 614 and 622, EPA-600/4-79-019 (1979) and in Method 8140, Test Methods for Evaluating Solid Waste, 1986, SW-846, Third Edition.

Phenol Analysis by GC: Samples are analyzed in accordance with procedures outlined in Method 604, Federal Register, 40 CFR, Part 136 (July 1, 1987) and in Method 8040, Test Methods for Evaluating Solid Waste, 1986, SW-846, Third Edition.

Polynuclear Aromatic Hydrocarbons (GC analysis): Samples are analyzed with procedures described in Method 610, Federal Register, 40 CFR, Part 136 (July 1, 1987) and in Method 8100, Test Methods for Evaluating Solid Waste, 1986, SW-846, Third Edition.

Ethylene Dibromide : Water samples are analyzed in accordance with procedures outlined in Method 504, Federal Register (50 FR 46902), November 13, 1985.

Trihalomethanes: Water samples are analyzed with procedures described in Method 501.2, Federal Register, Vol. 44, No. 231, Part II, November 29, 1979.

EPA - DEFINED QUALIFIERS

ORGANICS

Definitions for the EPA-defined qualifiers:

U -- Indicates the compound was analyzed for but not detected. The number adjacent to the "U" qualifier indicates the quantitation limit for that compound. The detection limit can vary from sample to sample depending on dilution factors or percent moisture adjustment when indicated.

J -- Indicates an estimated value. This flag is used when the mass spectral data indicates the presence of a compound below the stated quantitation limit. The "J" qualifier is not used with pesticide results.

C -- This flag applies to pesticide results only. The "C" flag indicates the presence of this compound has been confirmed by GC/MS analysis.

B -- This flag is used when the analyte is found in the associated blank as well as the sample. This notation indicates possible blank contamination and suggests the data user evaluate these compounds and their amounts carefully.

E -- This flag applies to GC/MS only. The "E" qualifier indicates a compound may be above or below the linear range of the instrument. If the particular compound level is deemed above the linear calibration range, then the sample should be reanalyzed at an appropriate dilution. Therefore, the "E" qualified amount is an estimated concentration. The results for the dilution will be reported on a separate Form I and will be flagged with a "D" if the dilution brings the concentration within proper calibration.

D -- This flag identifies compounds which have been run at a dilution to bring the concentration of that compound within the linear range of the instrument. "D" qualifiers are only used for samples that have been run initially with results above acceptable ranges. For secondary dilutions the "DL" suffix is appended to the sample number on the Form I.

A -- Indicates the Tentatively Identified Compound (TIC) is a suspected aldol-condensation product.

X -- Indicates the compound concentration has been manually modified or the EPA qualifier has been manually modified or added.

JX -- The compound was detected and quantitated below the Contract Required Quantitation Limit.

CLIENT SAMPLE ID QUALIFIERS

LEVEL 1

The qualifiers that GC/MS uses with the client sample ID are defined below:

DL -- Dilution Run

R -- Rerun (may be followed by a digit to indicate multiple reruns)

RD -- Diluted Rerun

RX -- Re-extraction Analysis

MS -- Matrix Spike (may be followed by a digit to indicate multiple matrix spikes within a sample set)

MSD -- Matrix Spike Duplicate (may be followed by a digit to indicate multiple matrix spike duplicates within a sample set)

QC_BLANK -- Method Blank (may be followed by an **S** for soils run at a low level, **W** for waters, or **SM** for soils run at a medium level) (letters may be followed by a digit to indicate multiple blanks of that type; if there are no letters the digit indicates multiple blanks).

These qualifiers allow GC/MS to have unique client sample ID's so that the client can get more accurate information from the data reported.

TABLE 1

SAMPLE CROSS-REFERENCE SUMMARY

CH2M HILL Laboratory No. 17146

LMG Sample No.	LRD Sample No.	Sample Description			
17146001	27985001	SAMPLE MW1	10/29/90	1550	GRAB
17146002	27985002	SAMPLE MW2	10/30/90	0850	GRAB
17146003	27985003	SAMPLE MW3	10/30/90	1212	GRAB
17146004	27985004	SAMPLE MW3A	10/30/90	1325	GRAB
17146005	27985005	SAMPLE MW4	10/30/90	1522	GRAB
17146006	27985006	SAMPLE MW5	10/30/90	1830	GRAB

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Laboratory Name: CH2M HILL/MGM
Lab Sample ID: 17146001
Client Sample ID: MW1

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: ____

Date Extracted: 11/05/90
Date Analyzed: 11/16/90
Dilution Factor: 1.0

ORGANOPHOSPHOROUS PESTICIDE COMPOUNDS

CAS Number		ug/L		CAS Number	ug/L
86-50-0	Azinophos methyl (Guthion). .	2	U		
35400-43-2	Bolstar (Sulprofos)	1	U		
2921-88-2	Chlorpyrifos	1	U		
5598-13-0	Chlorpyrifos methyl	1	U		
56-72-4	Coumaphos	1	U		
8065-48-3	Demeton	4	U		
333-41-5	Diazinon	1	U		
62-73-7	Dichlorvos	1	U		
298-04-4	Disulfoton	1	U		
563-12-2	Ethion	1	U		
13194-48-4	Ethoprop	1	U		
115-90-2	Fensulfothion	2	U		
55-38-9	Fenthion	1	U		
121-75-5	Malathion	1	U		
150-50-5	Merphos	NR			
7786-34-7	Mevinphos (Phosdrin)	1	U		
300-76-5	Naled	3	U		
56-38-2	Parathion ethyl	1	U		
298-00-0	Parathion methyl	1	U		
298-02-2	Phorate	1	U		
299-84-3	Ronnel	1	U		
961-11-5	Stirofos (Rabon)	1	U		
34643-46-4	Tokuthion (Prothiofos) . . .	1	U		
327-98-0	Trichlornate	1	U		
	Aspon - SS	83			

U - Analyzed for but not detected.
B - Detected in QC blank.
JX - Detected, concentration estimated.
SS - Surrogate Standard reported as percent recovery.

Comments: NR - Not recovered during method validation at CH2M HILL.

Form I

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ORGANICS ANALYSIS DATA SHEET

Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	11/05/90
Lab Sample ID:	17146002	Sample Matrix:	WATER	Date Analyzed:	11/16/90
Client Sample ID:	MW2	Percent Moisture:		Dilution Factor:	1.0

ORGANOPHOSPHOROUS PESTICIDE COMPOUNDS

CAS Number		ug/L		CAS Number		ug/L
86-50-0	Azinophos methyl (Guthion). .	2	U			
35400-43-2	Bolstar (Sulprofos)	1	U			
2921-88-2	Chlorpyrifos	1	U			
5598-13-0	Chlorpyrifos methyl	1	U			
56-72-4	Coumaphos	1	U			
8065-48-3	Demeton	4	U			
333-41-5	Diazinon	1	U			
62-73-7	Dichlorvos	1	U			
298-04-4	Disulfoton	1	U			
563-12-2	Ethion	1	U			
13194-48-4	Ethoprop	1	U			
115-90-2	Fensulfothion	2	U			
55-38-9	Fenthion	1	U			
121-75-5	Malathion	1	U			
150-50-5	Merphos	NR				
7786-34-7	Mevinphos (Phosdrin)	1	U			
300-76-5	Naled	3	U			
56-38-2	Parathion ethyl	1	U			
298-00-0	Parathion methyl	1	U			
298-02-2	Phorate	1	U			
299-84-3	Ronnel	1	U			
961-11-5	Stirofos (Rabon)	1	U			
34643-46-4	Tokuthion (Prothiofos) . . .	1	U			
327-98-0	Trichlornate	1	U			
	Aspon - SS	75				

U - Analyzed for but not detected.
B - Detected in QC blank.
JX - Detected, concentration estimated.
SS - Surrogate Standard reported as percent recovery.

Comments: NR - Not recovered during method validation at CH2M HILL.

Form I

Jws

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ORGANICS ANALYSIS DATA SHEET

Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	11/05/90
Lab Sample ID:	17146003	Sample Matrix:	WATER	Date Analyzed:	11/16/90
Client Sample ID:	MW3	Percent Moisture:		Dilution Factor:	1.0

ORGANOPHOSPHOROUS PESTICIDE COMPOUNDS

CAS Number		ug/L		CAS Number	ug/L
86-50-0	Azinophos methyl (Guthion)	2	U		
35400-43-2	Bolstar (Sulprofos)	1	U		
2921-88-2	Chlorpyrifos	1	U		
5598-13-0	Chlorpyrifos methyl	1	U		
56-72-4	Coumaphos	1	U		
8065-48-3	Demeton	4	U		
333-41-5	Diazinon	1	U		
62-73-7	Dichlorvos	1	U		
298-04-4	Disulfoton	1	U		
563-12-2	Ethion	1	U		
13194-48-4	Ethoprop	1	U		
115-90-2	Fensulfothion	2	U		
55-38-9	Fenthion	1	U		
121-75-5	Malathion	1	U		
150-50-5	Merphos	NR			
7786-34-7	Mevinphos (Phosdrin)	1	U		
300-76-5	Naled	3	U		
56-38-2	Parathion ethyl	1	U		
298-00-0	Parathion methyl	1	U		
298-02-2	Phorate	1	U		
299-84-3	Ronnel	1	U		
961-11-5	Stirofos (Rabon)	1	U		
34643-46-4	Tokuthion (Prothiofos)	1	U		
327-98-0	Trichlornate	1	U		
	Aspon - SS	76			

U - Analyzed for but not detected.
B - Detected in QC blank.
JX - Detected, concentration estimated.
SS - Surrogate Standard reported as percent recovery.

Comments: NR - Not recovered during method validation at CH2M HILL.

Form I

000003

ORGANICS ANALYSIS DATA SHEET

Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	11/05/90
Lab Sample ID:	17146004	Sample Matrix:	WATER	Date Analyzed:	11/16/90
Client Sample ID:	MW3A	Percent Moisture:		Dilution Factor:	1.0

ORGANOPHOSPHOROUS PESTICIDE COMPOUNDS

CAS Number		ug/L		CAS Number	ug/L
86-50-0	Azinophos methyl (Guthion). .	2	U		
35400-43-2	Bolstar (Sulprofos)	1	U		
2921-88-2	Chlorpyrifos	1	U		
5598-13-0	Chlorpyrifos methyl	1	U		
56-72-4	Coumaphos	1	U		
8065-48-3	Demeton	4	U		
333-41-5	Diazinon	1	U		
62-73-7	Dichlorvos	1	U		
298-04-4	Disulfoton	1	U		
563-12-2	Ethion	1	U		
13194-48-4	Ethoprop	1	U		
115-90-2	Fensulfothion	2	U		
55-38-9	Fenthion	1	U		
121-75-5	Malathion	1	U		
150-50-5	Merphos	NR			
7786-34-7	Mevinphos (Phosdrin)	1	U		
300-76-5	Naled	3	U		
56-38-2	Parathion ethyl	1	U		
298-00-0	Parathion methyl	1	U		
298-02-2	Phorate	1	U		
299-84-3	Ronnel	1	U		
961-11-5	Stirofos (Rabon)	1	U		
34643-46-4	Tokuthion (Prothiofos) . . .	1	U		
327-98-0	Trichlornate	1	U		
	Aspon - SS	72			

U - Analyzed for but not detected.
B - Detected in QC blank.
JX - Detected, concentration estimated.
SS - Surrogate Standard reported as percent recovery.

Comments: NR - Not recovered during method validation at CH2M HILL.

Form I

Jms
000004

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Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	11/05/90
Lab Sample ID:	17146005	Sample Matrix:	WATER	Date Analyzed:	11/16/90
Client Sample ID:	MW4	Percent Moisture:		Dilution Factor:	1.0

ORGANOPHOSPHOROUS PESTICIDE COMPOUNDS

CAS Number		uq/L		CAS Number	uq/L
86-50-0	Azinophos methyl (Guthion)	2	U		
35400-43-2	Bolstar (Sulprofos)	1	U		
2921-88-2	Chlorpyrifos	1	U		
5598-13-0	Chlorpyrifos methyl	1	U		
56-72-4	Coumaphos	1	U		
8065-48-3	Demeton	4	U		
333-41-5	Diazinon	1	U		
62-73-7	Dichlorvos	1	U		
298-04-4	Disulfoton	1	U		
563-12-2	Ethion	1	U		
13194-48-4	Ethoprop	1	U		
115-90-2	Fensulfothion	2	U		
55-38-9	Fenthion	1	U		
121-75-5	Malathion	1	U		
150-50-5	Merphos	NR			
7786-34-7	Mevinphos (Phosdrin)	1	U		
300-76-5	Naled	3	U		
56-38-2	Parathion ethyl	1	U		
298-00-0	Parathion methyl	1	U		
298-02-2	Phorate	1	U		
299-84-3	Ronnel	1	U		
961-11-5	Stirofos (Rabon)	1	U		
34643-46-4	Tokuthion (Prothiofos)	1	U		
327-98-0	Trichlornate	1	U		
	Aspon - SS	78			

U - Analyzed for but not detected.
B - Detected in QC blank.
JX - Detected, concentration estimated.
SS - Surrogate Standard reported as percent recovery.

Comments: NR - Not recovered during method validation at CH2M HILL.

Form I

Jws

ORGANICS ANALYSIS DATA SHEET

Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	11/05/90
Lab Sample ID:	17146006	Sample Matrix:	WATER	Date Analyzed:	11/16/90
Client Sample ID:	MW5	Percent Moisture:		Dilution Factor:	1.0

ORGANOPHOSPHOROUS PESTICIDE COMPOUNDS

CAS Number		ug/L		CAS Number	ug/L
86-50-0	Azinophos methyl (Guthion). .	2	U		
35400-43-2	Bolstar (Sulprofos)	1	U		
2921-88-2	Chlorpyrifos	1	U		
5598-13-0	Chlorpyrifos methyl	1	U		
56-72-4	Coumaphos	1	U		
8065-48-3	Demeton	4	U		
333-41-5	Diazinon	1	U		
62-73-7	Dichlorvos	1	U		
298-04-4	Disulfoton	1	U		
563-12-2	Ethion	1	U		
13194-48-4	Ethoprop	1	U		
115-90-2	Fensulfothion	2	U		
55-38-9	Fenthion	1	U		
121-75-5	Malathion	1	U		
150-50-5	Merphos	NR			
7786-34-7	Mevinphos (Phosdrin)	1	U		
300-76-5	Naled	3	U		
56-38-2	Parathion ethyl	1	U		
298-00-0	Parathion methyl	1	U		
298-02-2	Phorate	1	U		
299-84-3	Ronnel	1	U		
961-11-5	Stirofos (Rabon)	1	U		
34643-46-4	Tokuthion (Prothiofos) . . .	1	U		
327-98-0	Trichlornate	1	U		
	Aspon - SS	62			

U - Analyzed for but not detected.
B - Detected in QC blank.
JX - Detected, concentration estimated.
SS - Surrogate Standard reported as percent recovery.

Comments: NR - Not recovered during method validation at CH2M HILL.

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ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/MGM
Lab Sample ID: W11050B1
Client Sample ID: QC BLANK

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: ______

Date Extracted: 11/05/90
Date Analyzed: 11/15/90
Dilution Factor: 1.0

ORGANOPHOSPHOROUS PESTICIDE COMPOUNDS

CAS Number		ug/L		CAS Number	ug/L
86-50-0	Azinophos methyl (Guthion)	2	U		
35400-43-2	Bolstar (Sulprofos)	1	U		
2921-88-2	Chlorpyrifos	1	U		
5598-13-0	Chlorpyrifos methyl	1	U		
56-72-4	Coumaphos	1	U		
8065-48-3	Demeton	4	U		
333-41-5	Diazinon	1	U		
62-73-7	Dichlorvos	1	U		
298-04-4	Disulfoton	1	U		
563-12-2	Ethion	1	U		
13194-48-4	Ethoprop	1	U		
115-90-2	Fensulfothion	2	U		
55-38-9	Fenthion	1	U		
121-75-5	Malathion	1	U		
150-50-5	Merphos	NR			
7786-34-7	Mevinphos (Phosdrin)	1	U		
300-76-5	Naled	3	U		
56-38-2	Parathion ethyl	1	U		
298-00-0	Parathion methyl	1	U		
298-02-2	Phorate	1	U		
299-84-3	Ronnel	1	U		
961-11-5	Stirofos (Rabon)	1	U		
34643-46-4	Tokuthion (Prothiofos)	1	U		
327-98-0	Trichlornate	1	U		
	Aspon -- SS	83			

U - Analyzed for but not detected.
B - Detected in QC blank.
JX - Detected, concentration estimated.
SS - Surrogate Standard reported as percent recovery.

Comments: NR - Not recovered during method validation at CH2M HILL.

Form I

CH2M HILL QUALITY ANALYTICS

CHAIN OF CUSTODY RECORD BLM

PROJECT NUMBER: RDD 28361,A0.30

PROJECT NAME: STATELINE Dump

CLIENT NAME: CH2M Hill

PROJECT MANAGER: Mike Smith

COPY TO: P. Lawson

REQUESTED COMP. DATE:

SAMPLING REQUIREMENTS: SDWA ☐ NPDES ☐ RCRA ☐ OTHER ____

CLIENT ADDRESS AND PHONE NUMBER: CH2M Hill RDD

FOR LAB USE ONLY

LAB# 27985

LAB#

PROJECT NO.

ACK | VERIFIED

QUOTE# | BS

NO. OF SAMP | PG | OF

ANALYSES REQUESTED

STA NO.	DATE	TIME	COMP	GRAB	SOIL	SAMPLE DESCRIPTIONS (12 CHARACTERS)	# OF CONTAINERS	608/8080	604/8040	614/8140	TOC	TOX	VOA 601/602	RAS METALS	ph, F, Cl, SO4, TDS	DOC		LAB I.D.	REMARKS
MW1	10/29/90	15:50		X		MW1	10											/	

SAMPLED BY AND TITLE: John Lueck EqTech. DATE/TIME: 10/29/90 15:50

RELINQUISHED BY: John Lueck DATE/TIME: 10/31/91 10:25

RECEIVED BY: DATE/TIME:

RELINQUISHED BY: DATE/TIME:

RECEIVED BY: DATE/TIME:

RELINQUISHED BY: DATE/TIME:

RECEIVED BY LAB: Cindy Barba DATE/TIME: 10/31/90 10:25

SAMPLE SHIPPED VIA: UPS BUS FED-EX [✓ HAND] OTHER ____

AIR BILL#

HAZWRAP/NEESA Y N

QC LEVEL [✓ 1] 2 3

COC Y | ICE yes

ANA REQ Y | TEMP cool

CUST SEAL Y | Ph <2

SAMPLE COND. good

REMARKS

CB

ENTERED INTO LIMS ____ COC REVIEWED ____

CH2M HILL QUALITY ANALYTICS

CHAIN OF CUSTODY RECORD

PROJECT NUMBER:

PROJECT NAME: Stateline Dump BLM

CLIENT NAME: CH2M Hill

PROJECT MANAGER: Mike Smith

COPY TO: P. LAWSON

REQUESTED COMP. DATE:

SAMPLING REQUIREMENTS: SDWA ☐ NPDES ☐ RCRA ☐ OTHER ____

CLIENT ADDRESS AND PHONE NUMBER: CH2M Hill Rdd

FOR LAB USE ONLY

LAB# 27985

LAB#

PROJECT NO.

ACK | VERIFIED

QUOTE# | BS

NO. OF SAMP | PG OF

ANALYSES REQUESTED

STA NO.	DATE	TIME	COMP	GRAB	SOIL	SAMPLE DESCRIPTIONS (12 CHARACTERS)	# OF CONTAINERS	608/8080	604/8040 8040	TOC	TOX	DOC	601/602	ph, F, Cl, SO4, TDS	614/8140			LAB ID	REMARKS
MW2	10/30	8:50		X		mw2	10											2	Sampl 8:50/10/30/90
MW3	10/30	12:12		X		mw3	10											3	
MW3A	10/30	13:25		X		mw3A	10											4	
MW4	10/30	15:22		X		mw4	10											5	
MW5	10/30/90	18:30		X		mw5	10											6	

SAMPLED BY AND TITLE: John Lueck Eq Tech	DATE/TIME: 10/30/90 8:50 - 18:30	RELINQUISHED BY: John G. Lueck	DATE/TIME: 10/31/90 10:25
RECEIVED BY:	DATE/TIME	RELINQUISHED BY:	DATE/TIME
RECEIVED BY:	DATE/TIME	RELINQUISHED BY:	DATE/TIME
RECEIVED BY LAB: Andy Barba	DATE/TIME: 10/31/90 10:25	SAMPLE SHIPPED VIA: UPS BUS FED-EX [✓ HAND] OTHER ____	AIR BILL#

REMARKS

HAZWRAP/NEESA Y N

QC LEVEL [✓ 1] 2 3

COC Y | ICE y

ANA REQ Y | TEMP cool

CUST SEAL Y | Ph <2

SAMPLE COND. good

ENTERED INTO LIMS ____ COC REVIEWED ____

Appendix F
SEDIMENT SAMPLING ANALYTICAL DATA SHEETS

Sample results from the following sample locations are included in this appendix (see Figure 7 for sampling locations):

S-1
S-2
S-3
S-4
S-5
S-6

CH2M HILL
Engineers
Planners
Economists
Scientists

CASE NARRATIVE
General Chemistry
26718

I. Holding Time: All criteria met.

II. Analysis:

A. Calibration: Acceptance criteria met.
B. Blanks: Acceptance criteria met.
C. Matrix Spike: Acceptance criteria met.
D. Duplicate Analysis: Acceptance criteria met.
E. Lab Control Sample: Acceptance criteria met.
F. Other: None.

III. I certify that this data package is in compliance with the terms and conditions agreed to by the client and CH2M HILL, both technically and for completeness, for other than the conditions detailed above.

SIGNED: Randall Wright DATE: 7/10/90
Randall L. Wright
General Chemistry Supervisor

CH2M HILL
Engineers
Planners
Economists
Scientists

CASE NARRATIVE
Metals

26718

I. **Holding Time**:
All holding times were met.

II. Analysis:

A. **Blanks**:
All acceptance criteria were met.

B. **Calibration**:
All acceptance criteria were met.

C. **ICP Interference Check Sample**:
Not applicable.

D. **Spike Sample Analysis**:
All acceptance criteria were met.

E. **Duplicate Sample Analysis**:
All acceptance criteria were met.

F. **Laboratory Control Sample Analysis**:
All acceptance criteria were met.

G. **ICP Serial Dilution**:
Not applicable.

H. **Other**:
None.

III. I certify that this data package is in compliance with the terms and conditions agreed to by the client and CH2M HILL, both technically and for completeness, for other than the conditions detailed above.

Signed: Fred Bickell Date: 7/11/90

Fred Bickell
Cations Supervisor

CH2M HILL
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Scientists

REPORT OF ANALYTICAL RESULTS

Date: 07/17/90
Page: 3 of 5

Client: CH2M HILL/RDD
P.O. BOX 492478
REDDING, CA 96049

Atten: MR. MIKE SMITH

Project Number: RDD28631.A0
BLM STATELINE DUMP
Laboratory Number: 26811
Date Received: 06/15/90

Sample Description: S-6
Laboratory Sample Number: 26811003 Date Collected: 06/13/90 Matrix: SOIL

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Silver	EPA200.7/SW6010	0.70	<0.70	mg/kg	06/29/90
Aluminum	EPA200.7/SW6010	1.9	23300	mg/Kg	06/29/90
Arsenic	EPA206.2/SW7060	0.58	<0.58	mg/kg	07/03/90
Barium	EPA200.7/SW6010	0.23	190	mg/Kg	06/29/90
Beryllium	EPA200.7/SW6010	0.23	1.0	mg/kg	06/29/90
Calcium	EPA200.7/SW6010	11.7	19600	mg/Kg	06/29/90
Cadmium	EPA200.7/SW6010	0.23	0.49	mg/Kg	06/29/90
Cobalt	EPA200.7/SW6010	0.93	15.9	mg/Kg	06/29/90
Chromium	EPA200.7/SW6010	0.7	27.0	mg/Kg	06/29/90
Copper	EPA200.7/SW6010	0.7	32.1	mg/Kg	06/29/90
Iron	EPA200.7/SW6010	4.7	18600	mg/Kg	06/29/90
Mercury	SW7471	0.06	<0.06	mg/kg	07/03/90
Potassium	EPA200.7/SW6010	81.7	3450	mg/Kg	06/29/90
Magnesium	EPA200.7/SW6010	5.6	8910	mg/Kg	06/29/90
Manganese	EPA200.7/SW6010	0.23	526	mg/Kg	06/29/90
Sodium	EPA200.7/SW6010	11.7	481	mg/Kg	06/29/90
Nickel	EPA200.7/SW6010	1.4	32.2	mg/Kg	06/29/90
Lead	EPA239.2/SW7421	0.47	7.8	mg/Kg	06/28/90
Antimony	EPA200.7/SW6010	2.0	<2.0	mg/kg	06/29/90
Selenium	EPA270.2/SW7740	0.19	<0.19	mg/kg	06/27/90
Thallium	EPA279.2/SW7841	0.14	0.16	mg/Kg	07/03/90
Vanadium	EPA200.7/SW6010	0.7	41.8	mg/kg	06/29/90
Zinc	EPA200.7/SW6010	0.7	47.6	mg/Kg	06/29/90

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

Reviewed by: J Hawley

INRPRPT(v900202)

CH2M HILL
Engineers
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REPORT OF ANALYTICAL RESULTS

Date: 07/16/90
Page: 1 of 6

Client: CH2M HILL/RDD
1525 COURT ST.
REDDING, CA 96001

Project Number: RDD28361.A0.30
BLM STATELINE DUMP
Laboratory Number: 26718
Date Received: 06/05/90

Atten: MR. MIKE SMITH

Sample Description: S-1 SEDIMENT
Laboratory Sample Number: 26718001 Date Collected: 06/04/90 Matrix: SOIL

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Silver	EPA200.7/SW6010	0.77	8.2	mg/kg	06/19/90
Aluminum	EPA200.7/SW6010	2.0	15600	mg/Kg	06/19/90
Arsenic	EPA206.2/SW7060	0.1	0.34	mg/kg	06/20/90
Barium	EPA200.7/SW6010	0.26	185	mg/Kg	06/19/90
Beryllium	EPA200.7/SW6010	0.26	0.52	mg/kg	06/19/90
Calcium	EPA200.7/SW6010	12.8	6610	mg/Kg	06/19/90
Cadmium	EPA200.7/SW6010	0.26	0.55	mg/Kg	06/19/90
Cobalt	EPA200.7/SW6010	1.0	16.6	mg/Kg	06/19/90
Chromium	EPA200.7/SW6010	0.77	20.8	mg/Kg	06/19/90
Copper	EPA200.7/SW6010	0.77	30.6	mg/Kg	06/19/90
Iron	EPA200.7/SW6010	5.1	15400	mg/Kg	06/19/90
Fluoride	EPA340.2	0.32	0.62	mg/Kg	06/25/90
Mercury	SW7471	0.08	<0.08	mg/Kg	06/12/90
Potassium	EPA200.7/SW6010	89.6	1540	mg/Kg	06/19/90
Magnesium	EPA200.7/SW6010	6.1	4220	mg/Kg	06/19/90
Manganese	EPA200.7/SW6010	0.26	717	mg/Kg	06/19/90
Sodium	EPA200.7/SW6010	12.8	550	mg/Kg	06/19/90
Nickel	EPA200.7/SW6010	1.5	22.7	mg/Kg	06/19/90
Lead	EPA239.2/SW7421	0.16	10.6	mg/Kg	06/22/90
pH	SW9045	N/A	6.1	UNITS	06/19/90
Antimony	EPA200.7/SW6010	2.6	<2.6	mg/kg	06/19/90
Selenium	EPA270.2/SW7740	0.16	<0.16	mg/kg	06/21/90
Thallium	EPA279.2/SW7841	0.12	<0.12	mg/Kg	06/20/90
Vanadium	EPA200.7/SW6010	0.77	40.2	mg/kg	06/19/90
Zinc	EPA200.7/SW6010	0.77	49.0	mg/Kg	06/19/90

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

Reviewed by: Hawley

INRPRPT(v900202)

REPORT OF ANALYTICAL RESULTS

Date: 07/16/90
Page: 2 of 6

Client: CH2M HILL/RDD
1525 COURT ST.
REDDING, CA 96001

Atten: MR. MIKE SMITH

Project Number: RDD28361.A0.30
BLM STATELINE DUMP
Laboratory Number: 26718
Date Received: 06/05/90

Sample Description: S-2 SEDIMENT (BACKGROUND)
Laboratory Sample Number: 26718002 Date Collected: 06/04/90 Matrix: SOIL

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Silver	EPA200.7/SW6010	0.74	<0.74	mg/kg	06/19/90
Aluminum	EPA200.7/SW6010	2.0	18100	mg/Kg	06/19/90
Arsenic	EPA206.2/SW7060	0.1	0.30	mg/kg	06/20/90
Barium	EPA200.7/SW6010	0.25	194	mg/Kg	06/19/90
Beryllium	EPA200.7/SW6010	0.25	0.50	mg/kg	06/19/90
Calcium	EPA200.7/SW6010	12.4	6390	mg/Kg	06/19/90
Cadmium	EPA200.7/SW6010	0.25	0.53	mg/Kg	06/19/90
Cobalt	EPA200.7/SW6010	0.99	19.9	mg/Kg	06/19/90
Chromium	EPA200.7/SW6010	0.74	23.6	mg/Kg	06/19/90
Copper	EPA200.7/SW6010	0.74	32.4	mg/Kg	06/19/90
Iron	EPA200.7/SW6010	5.0	18300	mg/Kg	06/19/90
Fluoride	EPA340.2	0.31	0.42	mg/Kg	06/25/90
Mercury	SW7471	0.07	0.07	mg/Kg	06/12/90
Potassium	EPA200.7/SW6010	86.7	1600	mg/Kg	06/19/90
Magnesium	EPA200.7/SW6010	5.9	4430	mg/Kg	06/19/90
Manganese	EPA200.7/SW6010	0.25	777	mg/Kg	06/19/90
Sodium	EPA200.7/SW6010	12.4	692	mg/Kg	06/19/90
Nickel	EPA200.7/SW6010	1.5	28.0	mg/Kg	06/19/90
Lead	EPA239.2/SW7421	0.16	10.8	mg/Kg	06/22/90
pH	SW9045	N/A	6.2	UNITS	06/19/90
Antimony	EPA200.7/SW6010	2.5	<2.5	mg/kg	06/19/90
Selenium	EPA270.2/SW7740	0.16	<0.16	mg/kg	06/21/90
Thallium	EPA279.2/SW7841	0.12	<0.12	mg/Kg	06/20/90
Vanadium	EPA200.7/SW6010	0.74	46.0	mg/kg	06/19/90
Zinc	EPA200.7/SW6010	0.74	58.3	mg/Kg	06/19/90

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

Reviewed by: Hawley

INRPRPT(v900202)

CH2M HILL
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REPORT OF ANALYTICAL RESULTS

Date: 07/16/90
Page: 3 of 6

Client: CH2M HILL/RDD
1525 COURT ST.
REDDING, CA 96001

Atten: MR. MIKE SMITH

Project Number: RDD28361.A0.30
BLM STATELINE DUMP
Laboratory Number: 26718
Date Received: 06/05/90

Sample Description: S-3 SEDIMENT
Laboratory Sample Number: 26718003 Date Collected: 06/04/90 Matrix: SOIL

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Silver	EPA200.7/SW6010	0.8	<0.8	mg/kg	06/19/90
Aluminum	EPA200.7/SW6010	2.1	25700	mg/Kg	06/19/90
Arsenic	EPA206.2/SW7060	0.1	0.12	mg/kg	06/20/90
Barium	EPA200.7/SW6010	0.27	167	mg/Kg	06/19/90
Beryllium	EPA200.7/SW6010	0.27	0.78	mg/kg	06/19/90
Calcium	EPA200.7/SW6010	13.4	7970	mg/Kg	06/19/90
Cadmium	EPA200.7/SW6010	0.27	0.57	mg/Kg	06/19/90
Cobalt	EPA200.7/SW6010	1.1	15.7	mg/Kg	06/19/90
Chromium	EPA200.7/SW6010	0.8	27.9	mg/Kg	06/19/90
Copper	EPA200.7/SW6010	0.8	34.3	mg/Kg	06/19/90
Iron	EPA200.7/SW6010	5.4	22600	mg/Kg	06/19/90
Fluoride	EPA340.2	0.34	0.76	mg/Kg	06/25/90
Mercury	SW7471	0.08	0.11	mg/Kg	06/12/90
Potassium	EPA200.7/SW6010	94.0	2820	mg/Kg	06/19/90
Magnesium	EPA200.7/SW6010	6.4	6890	mg/Kg	06/19/90
Manganese	EPA200.7/SW6010	0.27	570	mg/Kg	06/19/90
Sodium	EPA200.7/SW6010	13.4	656	mg/Kg	06/19/90
Nickel	EPA200.7/SW6010	1.6	34.0	mg/Kg	06/19/90
Lead	EPA239.2/SW7421	0.16	16.5	mg/Kg	06/22/90
pH	SW9045	N/A	6.1	UNITS	06/19/90
Antimony	EPA200.7/SW6010	2.7	<2.7	mg/kg	06/19/90
Selenium	EPA270.2/SW7740	0.16	<0.16	mg/kg	06/21/90
Thallium	EPA279.2/SW7841	0.12	0.20	mg/Kg	06/20/90
Vanadium	EPA200.7/SW6010	0.8	39.4	mg/kg	06/19/90
Zinc	EPA200.7/SW6010	0.8	54.6	mg/Kg	06/19/90

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

Reviewed by: JE Hawley

INRPRPT(v900202)

CH2M HILL
Engineers
Planners
Economists
Scientists

REPORT OF ANALYTICAL RESULTS

Date: 07/16/90
Page: 4 of 6

Client: CH2M HILL/RDD
1525 COURT ST.
REDDING, CA 96001

Atten: MR. MIKE SMITH

Project Number: RDD28361.A0.30
BLM STATELINE DUMP
Laboratory Number: 26718
Date Received: 06/05/90

Sample Description: S-4 SEDIMENT
Laboratory Sample Number: 26718004 Date Collected: 06/04/90 Matrix: SOIL

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Silver	EPA200.7/SW6010	0.71	<0.71	mg/kg	06/19/90
Aluminum	EPA200.7/SW6010	1.9	16300	mg/Kg	06/19/90
Arsenic	EPA206.2/SW7060	0.1	0.24	mg/kg	06/20/90
Barium	EPA200.7/SW6010	0.24	169	mg/Kg	06/19/90
Beryllium	EPA200.7/SW6010	0.24	0.46	mg/kg	06/19/90
Calcium	EPA200.7/SW6010	11.9	8140	mg/Kg	06/19/90
Cadmium	EPA200.7/SW6010	0.24	0.54	mg/Kg	06/19/90
Cobalt	EPA200.7/SW6010	0.95	19.6	mg/Kg	06/19/90
Chromium	EPA200.7/SW6010	0.71	17.9	mg/Kg	06/19/90
Copper	EPA200.7/SW6010	0.71	25.5	mg/Kg	06/19/90
Iron	EPA200.7/SW6010	4.8	21800	mg/Kg	06/19/90
Fluoride	EPA340.2	0.30	0.43	mg/Kg	06/25/90
Mercury	SW7471	0.07	<0.07	mg/Kg	06/12/90
Potassium	EPA200.7/SW6010	83.2	1280	mg/Kg	06/19/90
Magnesium	EPA200.7/SW6010	5.7	9590	mg/Kg	06/19/90
Manganese	EPA200.7/SW6010	0.24	833	mg/Kg	06/19/90
Sodium	EPA200.7/SW6010	11.9	1000	mg/Kg	06/19/90
Nickel	EPA200.7/SW6010	1.4	46.7	mg/Kg	06/19/90
Lead	EPA239.2/SW7421	0.16	6.8	mg/Kg	06/22/90
pH	SW9045	N/A	5.8	UNITS	06/19/90
Antimony	EPA200.7/SW6010	2.4	2.4	mg/kg	06/19/90
Selenium	EPA270.2/SW7740	0.16	<0.16	mg/kg	06/21/90
Thallium	EPA279.2/SW7841	0.12	0.16	mg/Kg	06/20/90
Vanadium	EPA200.7/SW6010	0.71	42.6	mg/kg	06/19/90
Zinc	EPA200.7/SW6010	0.71	95.6	mg/Kg	06/19/90

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

Reviewed by: J Hawley

INRPRPT(v900202)

REPORT OF ANALYTICAL RESULTS

Client: CH2M HILL/RDD
1525 COURT ST.
REDDING, CA 96001

Atten: MR. MIKE SMITH

Project Number: RDD28361.A0.30
BLM STATELINE DUMP
Laboratory Number: 26718
Date Received: 06/05/90

Sample Description: S-5 SEDIMENT
Laboratory Sample Number: 26718005 Date Collected: 06/04/90 Matrix: SOIL

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Silver	EPA200.7/SW6010	0.85	<0.85	mg/kg	06/19/90
Aluminum	EPA200.7/SW6010	2.3	22400	mg/Kg	06/19/90
Arsenic	EPA206.2/SW7060	0.1	<0.1	mg/kg	06/20/90
Barium	EPA200.7/SW6010	0.28	224	mg/Kg	06/19/90
Beryllium	EPA200.7/SW6010	0.28	0.82	mg/kg	06/19/90
Calcium	EPA200.7/SW6010	14.2	10500	mg/Kg	06/19/90
Cadmium	EPA200.7/SW6010	0.28	0.74	mg/Kg	06/19/90
Cobalt	EPA200.7/SW6010	1.1	17.2	mg/Kg	06/19/90
Chromium	EPA200.7/SW6010	0.85	26.8	mg/Kg	06/19/90
Copper	EPA200.7/SW6010	0.85	42.5	mg/Kg	06/19/90
Iron	EPA200.7/SW6010	5.7	23400	mg/Kg	06/19/90
Fluoride	EPA340.2	0.36	0.60	mg/Kg	06/25/90
Mercury	SW7471	0.08	<0.08	mg/Kg	06/12/90
Potassium	EPA200.7/SW6010	99.4	3450	mg/Kg	06/19/90
Magnesium	EPA200.7/SW6010	6.8	6390	mg/Kg	06/19/90
Manganese	EPA200.7/SW6010	0.28	761	mg/Kg	06/19/90
Sodium	EPA200.7/SW6010	14.2	528	mg/Kg	06/19/90
Nickel	EPA200.7/SW6010	1.7	32.5	mg/Kg	06/19/90
Lead	EPA239.2/SW7421	0.16	6.0	mg/Kg	06/22/90
pH	SW9045	N/A	6.0	UNITS	06/19/90
Antimony	EPA200.7/SW6010	2.8	<2.8	mg/kg	06/19/90
Selenium	EPA270.2/SW7740	0.16	<0.16	mg/kg	06/21/90
Thallium	EPA279.2/SW7841	0.12	0.14	mg/Kg	06/20/90
Vanadium	EPA200.7/SW6010	0.85	56.5	mg/kg	06/19/90
Zinc	EPA200.7/SW6010	0.85	70.8	mg/Kg	06/19/90

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

Reviewed by: J Hawley

CH2M HILL
Engineers
Planners
Economists
Scientists

REPORT OF ANALYTICAL RESULTS

Date: 07/16/90
Page: 6 of 6

Client: CH2M HILL/RDD
1525 COURT ST.
REDDING, CA 96001

Atten: MR. MIKE SMITH

Project Number: RDD28361.A0.30
BLM STATELINE DUMP
Laboratory Number: 26718
Date Received: 06/05/90

Sample Description: METHOD BLANK
Laboratory Sample Number: 26718ZS1 Date Collected: 06/06/90 Matrix: SOIL BLANK

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Silver	EPA200.7/SW6010	0.6	<0.6	mg/kg	06/19/90
Aluminum	EPA200.7/SW6010	1.6	9.2	mg/Kg	06/19/90
Arsenic	EPA206.2/SW7060	0.1	<0.1	mg/kg	06/20/90
Barium	EPA200.7/SW6010	0.2	<0.2	mg/Kg	06/19/90
Beryllium	EPA200.7/SW6010	0.2	<0.2	mg/kg	06/19/90
Calcium	EPA200.7/SW6010	10.0	36.8	mg/Kg	06/19/90
Cadmium	EPA200.7/SW6010	0.2	<0.2	mg/Kg	06/19/90
Cobalt	EPA200.7/SW6010	0.8	<0.8	mg/Kg	06/19/90
Chromium	EPA200.7/SW6010	0.60	0.95	mg/Kg	06/19/90
Copper	EPA200.7/SW6010	0.6	<0.6	mg/Kg	06/19/90
Iron	EPA200.7/SW6010	4.0	<4.0	mg/Kg	06/19/90
Fluoride	EPA340.2	0.25	<0.25	mg/kg	06/25/90
Mercury	SW7471	0.06	<0.06	mg/Kg	06/12/90
Potassium	EPA200.7/SW6010	70.0	<70.0	mg/Kg	06/19/90
Magnesium	EPA200.7/SW6010	4.8	<4.8	mg/Kg	06/19/90
Manganese	EPA200.7/SW6010	0.2	<0.2	mg/Kg	06/19/90
Sodium	EPA200.7/SW6010	10.0	18.6	mg/Kg	06/19/90
Nickel	EPA200.7/SW6010	1.2	<1.2	mg/Kg	06/19/90
Lead	EPA239.2/SW7421	0.16	<0.16	mg/Kg	06/22/90
Antimony	EPA200.7/SW6010	2.0	<2.0	mg/kg	06/19/90
Selenium	EPA270.2/SW7740	0.16	<0.16	mg/kg	06/21/90
Thallium	EPA279.2/SW7841	0.12	<0.12	mg/Kg	06/20/90
Vanadium	EPA200.7/SW6010	0.6	<0.6	mg/kg	06/19/90
Zinc	EPA200.7/SW6010	0.6	<0.6	mg/Kg	06/19/90

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

Reviewed by: Hawley

INRPRPT(v900202)

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CASE NARRATIVE FOR VOLATILE GAS CHROMATOGRAPHY SAMPLES

LABORATORY:	CH2M HILL	**CLIENT** :	B.L.M.
CASE NO :	N/A	**CONTRACT NO.**:	N/A
LAB ID :	26718	**SDG #** :	N/A

I. RECEIPT

A. Date: June 5, 1990

B.

LAB ID	CLIENT ID	SAMPLE MATRIX	DATE SAMPLED	EXTRACTION DATE	ANALYSIS DATE
26718001	S-1	Sediment	6/4/90	N/A	6/18/90
26718002	S-2	Sediment	6/4/90	N/A	6/18/90
26718003	S-3	Sediment	6/4/90	N/A	6/18/90
26718004	S-4	Sediment	6/4/90	N/A	6/18/90
26718005	S-5	Sediment	6/4/90	N/A	6/18/90

C. Documentation Exceptions : None encountered.

II. EXTRACTION

A. Holding Times: Medium level protocol was not performed, therefore, holding times are not applicable.

B. Extraction Exceptions : Not applicable.

III. ANALYSIS

A. Holding Times: All holding times were met.

B. Analytical Exceptions : None encountered.

IV. QUALITY CONTROL

A. Method Blank : A method blank is a laboratory generated sample used to determine the degree to which laboratory operations may cause false positive results for these samples.

Methylene chloride was detected in the method blank analyzed 6/18/90. A concentration of 5x the established detection limit is allowed for common laboratory solvents. Percent recovery for method 8010 surrogate standard 1,4-Dichlorobutane exceeded advisory limits for this method blank.

B. Surrogate Recoveries : Percent recoveries for the method 8020 surrogate standard, a-Trifluorotoluene, exceeded advisory limits for sample 26718-5 (S-5). No target compounds were observed in this sample.

C. Matrix Spike Results: Not applicable.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature. Diskette deliverables have not be provided for this data package.

Warren Lee Kidd 7/20/90

Warren Lee Kidd
Organics GC Manager

Date

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Report of Analytical Data - Purgeable Halocarbons/Aromatics

Client: NA
Project: NA
Proj No: NA
Method: EPA 601/602
Matrix: Water
Sampler: NA

Laboratory: CH2M Hill/LRD
Lab Sample ID: Method Blank
% Moisture: 100.0
Dilution Factor: 1
Instrument ID: 3600

Date Sampled: NA
Date Received: NA
Date Extracted: NA
Date Analyzed: 06/18/90
Analyst: J.W.
Date Reported: 07/23/90

Client Sample ID/Description: NA

CAS Number	Compound	Reporting Limit	Sample Result	Confirmation Result	Reporting Units
74-87-3	Chloromethane	1.0	U	NR	ug/L
74-83-9	Bromomethane	1.0	U	NR	ug/L
75-01-4	Vinyl chloride	1.0	U	NR	ug/L
75-00-3	Chloroethane	1.0	U	NR	ug/L
75-09-2	Dichloromethane	1.0	1.0	NR	ug/L
75-69-4	Trichlorofluoromethane	1.0	U	NR	ug/L
75-35-4	1,1-Dichloroethene	1.0	U	NR	ug/L
75-34-3	1,1-Dichloroethane	1.0	U	NR	ug/L
156-60-5	trans-1,2-Dichloroethene	1.0	U	NR	ug/L
67-66-3	Chloroform	1.0	U	NR	ug/L
107-06-2	1,2-Dichloroethane	1.0	U	NR	ug/L
71-55-6	1,1,1-Trichloroethane	1.0	U	NR	ug/L
56-23-5	Carbon tetrachloride	1.0	U	NR	ug/L
75-27-4	Bromodichloromethane	1.0	U	NR	ug/L
78-87-5	1,2-Dichloropropane	1.0	U	NR	ug/L
10061-01-5	cis-1,3-Dichloropropene	1.0	U	NR	ug/L
79-01-6	Trichloroethene	1.0	U	NR	ug/L
124-48-1	Dibromochloromethane	1.0	U	NR	ug/L
79-00-5	1,1,2-Trichloroethane	1.0	U	NR	ug/L
10061-02-6	trans-1,3-Dichloropropene	1.0	U	NR	ug/L
75-25-2	Bromoform	1.0	U	NR	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	NR	ug/L
127-18-4	Tetrachloroethene	1.0	U	NR	ug/L
108-90-7	Chlorobenzene	1.0	U	NR	ug/L
541-73-1	1,3-Dichlorobenzene	1.0	U	NR	ug/L
95-50-1	1,2-Dichlorobenzene	1.0	U	NR	ug/L
106-46-7	1,4-Dichlorobenzene	1.0	U	NR	ug/L
1634-04-4	tert-Butyl methyl ether	1.0	U	NR	ug/L
71-43-2	Benzene	1.0	U	NR	ug/L
108-88-3	Toluene	1.0	U	NR	ug/L
100-41-4	Ethylbenzene	1.0	U	NR	ug/L
1330-20-7	Total xylenes	1.0	U	NR	ug/L
110-56-5	1,4- Dichlorobutane		103		
98-08-8	a-Trifluorotoluene-SS		103		% rec

U = Compound analyzed for but not detected.
SS = Surrogate Standard reported as percent recovery.
NR = Not Required. This sample was analyzed by a modified EPA 601/602 Method.

Comments:

Reviewed by: WLK

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Report of Analytical Data - Purgeable Halocarbons

Client:	B.L.M.	Laboratory:	CH2M Hill/LRD	Date Sampled:	06-04-90
Project:	BLM-Stateline Dump	Lab Sample ID:	26718-1	Date Received:	06-05-90
Proj No:	RDD 28631.A0	% Moisture:	21.9	Date Extracted:	NA
Method:	EPA 8010	Dilution Factor:	1	Date Analyzed:	06-18-90
Matrix:	Sediment	Instrument ID:	3600	Analyst:	J.W.
Sampler:	Peter Lawson			Date Reported:	07-23-90

Client Sample ID/Description: S-1

CAS Number	Compound	Reporting Limit	Sample Result	Confirmation Result	Reporting Units
74-87-3	Chloromethane	1.3	U	NR	ug/kg
74-83-9	Bromomethane	1.3	U	NR	ug/kg
75-01-4	Vinyl chloride	1.3	U	NR	ug/kg
75-00-3	Chloroethane	1.3	U	NR	ug/kg
75-09-2	Dichloromethane	1.3	3.0	NR	ug/kg
75-69-4	Trichlorofluoromethane	1.3	U	NR	ug/kg
75-35-4	1,1-Dichloroethene	1.3	U	NR	ug/kg
75-34-3	1,1-Dichloroethane	1.3	U	NR	ug/kg
156-60-5	trans-1,2-Dichloroethene	1.3	U	NR	ug/kg
67-66-3	Chloroform	1.3	U	NR	ug/kg
107-06-2	1,2-Dichloroethane	1.3	U	NR	ug/kg
71-55-6	1,1,1-Trichloroethane	1.3	U	NR	ug/kg
56-23-5	Carbon tetrachloride	1.3	U	NR	ug/kg
75-27-4	Bromodichloromethane	1.3	U	NR	ug/kg
78-87-5	1,2-Dichloropropane	1.3	U	NR	ug/kg
10061-01-5	cis-1,3-Dichloropropene	1.3	U	NR	ug/kg
79-01-6	Trichloroethene	1.3	U	NR	ug/kg
124-48-1	Dibromochloromethane	1.3	U	NR	ug/kg
79-00-5	1,1,2-Trichloroethane	1.3	U	NR	ug/kg
10061-02-6	trans-1,3-Dichloropropene	1.3	U	NR	ug/kg
75-25-2	Bromoform	1.3	U	NR	ug/kg
79-34-5	1,1,2,2-Tetrachloroethane	1.3	U	NR	ug/kg
127-18-4	Tetrachloroethene	1.3	U	NR	ug/kg
108-90-7	Chlorobenzene	1.3	U	NR	ug/kg
541-73-1	1,3-Dichlorobenzene	1.3	U	NR	ug/kg
95-50-1	1,2-Dichlorobenzene	1.3	U	NR	ug/kg
106-46-7	1,4-Dichlorobenzene	1.3	U	NR	ug/kg
1634-04-4	tert-Butyl methyl ether	1.3	U	NR	ug/kg
71-43-2	Benzene	1.3	U	NR	ug/kg
108-88-3	Toluene	1.3	U	NR	ug/kg
100-41-4	Ethylbenzene	1.3	U	NR	ug/kg
1330-20-7	Total xylenes	1.3	U	NR	ug/kg
110-56-5	1,4-Dichlorobutane-SS		131		% rec
98-08-8	a-Trifluorotoluene		106		

U = Compound analyzed for but not detected.
SS = Surrogate Standard reported as percent recovery.
NR = Not Required. This sample was analyzed by a modified EPA 8010 method.

Comments: Results reported on a dry-weight basis.

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Report of Analytical Data - Purgeable Halocarbons

Client: B.L.M.
Project: BLM-Stateline Dump
Proj No: RDD 28631.A0
Method: EPA 8010
Matrix: Sediment
Sampler: Peter Lawson

Laboratory: CH2M Hill/LRD
Lab Sample ID: 26718-2
% Moisture: 19.3
Dilution Factor: 1
Instrument ID: 3600

Date Sampled: 06-04-90
Date Received: 06-05-90
Date Extracted: NA
Date Analyzed: 06-18-90
Analyst: J.W.
Date Reported: 07-23-90

Client Sample ID/Description: S-2

CAS Number	Compound	Reporting Limit	Sample Result	Confirmation Result	Reporting Units
74-87-3	Chloromethane	1.2	U	NR	ug/kg
74-83-9	Bromomethane	1.2	U	NR	ug/kg
75-01-4	Vinyl chloride	1.2	U	NR	ug/kg
75-00-3	Chloroethane	1.2	U	NR	ug/kg
75-09-2	Dichloromethane	1.2	3.0	NR	ug/kg
75-69-4	Trichlorofluoromethane	1.2	U	NR	ug/kg
75-35-4	1,1-Dichloroethene	1.2	U	NR	ug/kg
75-34-3	1,1-Dichloroethane	1.2	U	NR	ug/kg
156-60-5	trans-1,2-Dichloroethene	1.2	U	NR	ug/kg
67-66-3	Chloroform	1.2	U	NR	ug/kg
107-06-2	1,2-Dichloroethane	1.2	U	NR	ug/kg
71-55-6	1,1,1-Trichloroethane	1.2	U	NR	ug/kg
56-23-5	Carbon tetrachloride	1.2	U	NR	ug/kg
75-27-4	Bromodichloromethane	1.2	U	NR	ug/kg
78-87-5	1,2-Dichloropropane	1.2	U	NR	ug/kg
10061-01-5	cis-1,3-Dichloropropene	1.2	U	NR	ug/kg
79-01-6	Trichloroethene	1.2	U	NR	ug/kg
124-48-1	Dibromochloromethane	1.2	U	NR	ug/kg
79-00-5	1,1,2-Trichloroethane	1.2	U	NR	ug/kg
10061-02-6	trans-1,3-Dichloropropene	1.2	U	NR	ug/kg
75-25-2	Bromoform	1.2	U	NR	ug/kg
79-34-5	1,1,2,2-Tetrachloroethane	1.2	U	NR	ug/kg
127-18-4	Tetrachloroethene	1.2	U	NR	ug/kg
108-90-7	Chlorobenzene	1.2	U	NR	ug/kg
541-73-1	1,3-Dichlorobenzene	1.2	U	NR	ug/kg
95-50-1	1,2-Dichlorobenzene	1.2	U	NR	ug/kg
106-46-7	1,4-Dichlorobenzene	1.2	U	NR	ug/kg
1634-04-4	tert-Butyl methyl ether	1.2	U	NR	ug/kg
71-43-2	Benzene	1.2	U	NR	ug/kg
108-88-3	Toluene	1.2	U	NR	ug/kg
100-41-4	Ethylbenzene	1.2	U	NR	ug/kg
1330-20-7	Total xylenes	1.2	U	NR	ug/kg
110-56-5	1,4-Dichlorobutane		123		% rec
598-08-8	a-Trifluorotoluene		130		

U = Compound analyzed for but not detected.
SS = Surrogate Standard reported as percent recovery.
NR = Not Required. This sample was analyzed by a modified EPA 8010 method.

Comments: Results reported on a dry-weight basis.

Reviewed by: WLK

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Report of Analytical Data - Purgeable Halocarbons

Client:	B.L.M.	Laboratory:	CH2M Hill/LRD	Date Sampled:	06-04-90
Project:	BLM-Stateline Dump	Lab Sample ID:	26718-3	Date Received:	06-05-90
Proj No:	RDD 28631.A0	% Moisture:	25.5	Date Extracted:	NA
Method:	EPA 8010	Dilution Factor:	1	Date Analyzed:	06-18-90
Matrix:	Sediment	Instrument ID:	3600	Analyst:	J.W.
Sampler:	Peter Lawson			Date Reported:	07-23-90

Client Sample ID/Description: S-3

CAS Number	Compound	Reporting Limit	Sample Result	Confirmation Result	Reporting Units
74-87-3	Chloromethane	1.3	U	NR	ug/kg
74-83-9	Bromomethane	1.3	U	NR	ug/kg
75-01-4	Vinyl chloride	1.3	U	NR	ug/kg
75-00-3	Chloroethane	1.3	U	NR	ug/kg
75-09-2	Dichloromethane	1.3	5.0	NR	ug/kg
75-69-4	Trichlorofluoromethane	1.3	U	NR	ug/kg
75-35-4	1,1-Dichloroethene	1.3	U	NR	ug/kg
75-34-3	1,1-Dichloroethane	1.3	U	NR	ug/kg
156-60-5	trans-1,2-Dichloroethene	1.3	U	NR	ug/kg
67-66-3	Chloroform	1.3	U	NR	ug/kg
107-06-2	1,2-Dichloroethane	1.3	U	NR	ug/kg
71-55-6	1,1,1-Trichloroethane	1.3	U	NR	ug/kg
56-23-5	Carbon tetrachloride	1.3	U	NR	ug/kg
75-27-4	Bromodichloromethane	1.3	U	NR	ug/kg
78-87-5	1,2-Dichloropropane	1.3	U	NR	ug/kg
10061-01-5	cis-1,3-Dichloropropene	1.3	U	NR	ug/kg
79-01-6	Trichloroethene	1.3	U	NR	ug/kg
124-48-1	Dibromochloromethane	1.3	U	NR	ug/kg
79-00-5	1,1,2-Trichloroethane	1.3	U	NR	ug/kg
10061-02-6	trans-1,3-Dichloropropene	1.3	U	NR	ug/kg
75-25-2	Bromoform	1.3	U	NR	ug/kg
79-34-5	1,1,2,2-Tetrachloroethane	1.3	U	NR	ug/kg
127-18-4	Tetrachloroethene	1.3	U	NR	ug/kg
108-90-7	Chlorobenzene	1.3	U	NR	ug/kg
541-73-1	1,3-Dichlorobenzene	1.3	U	NR	ug/kg
95-50-1	1,2-Dichlorobenzene	1.3	U	NR	ug/kg
106-46-7	1,4-Dichlorobenzene	1.3	U	NR	ug/kg
1634-04-4	tert-Butyl methyl ether	1.3	U	NR	ug/kg
71-43-2	Benzene	1.3	U	NR	ug/kg
108-88-3	Toluene	1.3	U	NR	ug/kg
100-41-4	Ethylbenzene	1.3	U	NR	ug/kg
1330-20-7	Total xylenes	1.3	U	NR	ug/kg
110-56-5	1,4-Dichlorobutane		125		% rec
98-08-8	a-Trifluorotoluene		110		

U = Compound analyzed for but not detected.
SS = Surrogate Standard reported as percent recovery.
NR = Not Required. This sample was analyzed by a modified EPA 8010 method.

Comments: Results reported on a dry-weight basis.

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Report of Analytical Data - Purgeable Halocarbons

Client: B.L.M.
Project: BLM-Stateline Dump
Proj No: RDD 28631.A0
Method: EPA 8010
Matrix: Sediment
Sampler: Peter Lawson

Laboratory: CH2M Hill/LRD
Lab Sample ID: 26718-4
% Moisture: 15.9
Dilution Factor: 1
Instrument ID: 3600

Date Sampled: 06-04-90
Date Received: 06-05-90
Date Extracted: NA
Date Analyzed: 06-18-90
Analyst: J.W.
Date Reported: 07-23-90

Client Sample ID/Description: S-4

CAS Number	Compound	Reporting Limit	Sample Result	Confirmation Result	Reporting Units
74-87-3	Chloromethane	1.2	U	NR	ug/kg
74-83-9	Bromomethane	1.2	U	NR	ug/kg
75-01-4	Vinyl chloride	1.2	U	NR	ug/kg
75-00-3	Chloroethane	1.2	U	NR	ug/kg
75-09-2	Dichloromethane	1.2	3.0	NR	ug/kg
75-69-4	Trichlorofluoromethane	1.2	U	NR	ug/kg
75-35-4	1,1-Dichloroethene	1.2	U	NR	ug/kg
75-34-3	1,1-Dichloroethane	1.2	U	NR	ug/kg
156-60-5	trans-1,2-Dichloroethene	1.2	U	NR	ug/kg
67-66-3	Chloroform	1.2	U	NR	ug/kg
107-06-2	1,2-Dichloroethane	1.2	U	NR	ug/kg
71-55-6	1,1,1-Trichloroethane	1.2	U	NR	ug/kg
56-23-5	Carbon tetrachloride	1.2	U	NR	ug/kg
75-27-4	Bromodichloromethane	1.2	U	NR	ug/kg
78-87-5	1,2-Dichloropropane	1.2	U	NR	ug/kg
10061-01-5	cis-1,3-Dichloropropene	1.2	U	NR	ug/kg
79-01-6	Trichloroethene	1.2	U	NR	ug/kg
124-48-1	Dibromochloromethane	1.2	U	NR	ug/kg
79-00-5	1,1,2-Trichloroethane	1.2	U	NR	ug/kg
10061-02-6	trans-1,3-Dichloropropene	1.2	U	NR	ug/kg
75-25-2	Bromoform	1.2	U	NR	ug/kg
79-34-5	1,1,2,2-Tetrachloroethane	1.2	U	NR	ug/kg
127-18-4	Tetrachloroethene	1.2	U	NR	ug/kg
108-90-7	Chlorobenzene	1.2	U	NR	ug/kg
541-73-1	1,3-Dichlorobenzene	1.2	U	NR	ug/kg
95-50-1	1,2-Dichlorobenzene	1.2	U	NR	ug/kg
106-46-7	1,4-Dichlorobenzene	1.2	U	NR	ug/kg
1634-04-4	tert-Butyl methyl ether	1.2	U	NR	ug/kg
71-43-2	Benzene	1.2	U	NR	ug/kg
108-88-3	Toluene	1.2	U	NR	ug/kg
100-41-4	Ethylbenzene	1.2	U	NR	ug/kg
1330-20-7	Total xylenes	1.2	U	NR	ug/kg
110-56-5	1,4-Dichlorobutane		79		% rec
98-08-5	a-Trifluorotoluene		116		

U = Compound analyzed for but not detected.
SS = Surrogate Standard reported as percent recovery.
NR = Not Required. This sample was analyzed by a modified EPA 8010 method.

Comments: Results reported on a dry-weight basis.

Reviewed by: WLK

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Report of Analytical Data - Purgeable Halocarbons

Client: B.L.M.
Project: BLM-Stateline Dump
Proj No: RDD 28631.A0
Method: EPA 8010
Matrix: Sediment
Sampler: Peter Lawson

Laboratory: CH2M Hill/LRD
Lab Sample ID: 26718-5
% Moisture: 29.6
Dilution Factor: 1
Instrument ID: 3600

Date Sampled: 06-04-90
Date Received: 06-05-90
Date Extracted: NA
Date Analyzed: 06-18-90
Analyst: J.W.
Date Reported: 07-23-90

Client Sample ID/Description: S-5

CAS Number	Compound	Reporting Limit	Sample Result	Confirmation Result	Reporting Units
74-87-3	Chloromethane	1.4	U	NR	ug/kg
74-83-9	Bromomethane	1.4	U	NR	ug/kg
75-01-4	Vinyl chloride	1.4	U	NR	ug/kg
75-00-3	Chloroethane	1.4	U	NR	ug/kg
75-09-2	Dichloromethane	1.4	7.0	NR	ug/kg
75-69-4	Trichlorofluoromethane	1.4	U	NR	ug/kg
75-35-4	1,1-Dichloroethene	1.4	U	NR	ug/kg
75-34-3	1,1-Dichloroethane	1.4	U	NR	ug/kg
156-60-5	trans-1,2-Dichloroethene	1.4	U	NR	ug/kg
67-66-3	Chloroform	1.4	U	NR	ug/kg
107-06-2	1,2-Dichloroethane	1.4	U	NR	ug/kg
71-55-6	1,1,1-Trichloroethane	1.4	U	NR	ug/kg
56-23-5	Carbon tetrachloride	1.4	U	NR	ug/kg
75-27-4	Bromodichloromethane	1.4	U	NR	ug/kg
78-87-5	1,2-Dichloropropane	1.4	U	NR	ug/kg
10061-01-5	cis-1,3-Dichloropropene	1.4	U	NR	ug/kg
79-01-6	Trichloroethene	1.4	U	NR	ug/kg
124-48-1	Dibromochloromethane	1.4	U	NR	ug/kg
79-00-5	1,1,2-Trichloroethane	1.4	U	NR	ug/kg
10061-02-6	trans-1,3-Dichloropropene	1.4	U	NR	ug/kg
75-25-2	Bromoform	1.4	U	NR	ug/kg
79-34-5	1,1,2,2-Tetrachloroethane	1.4	U	NR	ug/kg
127-18-4	Tetrachloroethene	1.4	U	NR	ug/kg
108-90-7	Chlorobenzene	1.4	U	NR	ug/kg
541-73-1	1,3-Dichlorobenzene	1.4	U	NR	ug/kg
95-50-1	1,2-Dichlorobenzene	1.4	U	NR	ug/kg
106-46-7	1,4-Dichlorobenzene	1.4	U	NR	ug/kg
1634-04-4	tert-Butyl methyl ether	1.4	U	NR	ug/kg
71-43-2	Benzene	1.4	U	NR	ug/kg
108-88-3	Toluene	1.4	U	NR	ug/kg
100-41-4	Ethylbenzene	1.4	U	NR	ug/kg
1330-20-7	Total xylenes	1.4	U	NR	ug/kg
110-56-5	1,4-Dichlorobutane		136		% rec
98-08-8	a-Trifluorotoluene		152		

U = Compound analyzed for but not detected.
SS = Surrogate Standard reported as percent recovery.
NR = Not Required. This sample was analyzed by a modified EPA 8010 method.

Comments: Results reported on a dry-weight basis.

Reviewed by: WLK

Report of Analytical Data - Purgeable Halocarbons/Aromatics

Client: B.L.M.
Project: BLM-Stateline Dump
Proj No: RDD 28631.A0
Method: EPA 8010/8020
Matrix: Soil
Sampler: J. Morris

Laboratory: CH2M Hill/LRD
Lab Sample ID: 26811-3
% Moisture: 14.3
Dilution Factor: 1
Instrument ID: 3600

Date Sampled: 06-13-90
Date Received: 06-15-90
Date Extracted: NA
Date Analyzed: 07-04-90
Analyst: J.W.
Date Reported: 07-16-90

Client Sample ID/Description: S-6

CAS Number	Compound	Reporting Limit	Sample Result	Confirmation Result	Reporting Units
74-87-3	Chloromethane	1.2	U	NR	ug/kg
74-83-9	Bromomethane	1.2	U	NR	ug/kg
75-01-4	Vinyl chloride	1.2	U	NR	ug/kg
75-00-3	Chloroethane	1.2	U	NR	ug/kg
75-09-2	Dichloromethane	1.2	2.3	NR	ug/kg
75-69-4	Trichlorofluoromethane	1.2	U	NR	ug/kg
75-35-4	1,1-Dichloroethene	1.2	U	NR	ug/kg
75-34-3	1,1-Dichloroethane	1.2	U	NR	ug/kg
156-60-5	trans-1,2-Dichloroethene	1.2	U	NR	ug/kg
67-66-3	Chloroform	1.2	U	NR	ug/kg
107-06-2	1,2-Dichloroethane	1.2	U	NR	ug/kg
71-55-6	1,1,1-Trichloroethane	1.2	U	NR	ug/kg
56-23-5	Carbon tetrachloride	1.2	U	NR	ug/kg
75-27-4	Bromodichloromethane	1.2	U	NR	ug/kg
78-87-5	1,2-Dichloropropane	1.2	U	NR	ug/kg
10061-01-5	cis-1,3-Dichloropropene	1.2	U	NR	ug/kg
79-01-6	Trichloroethene	1.2	U	NR	ug/kg
124-48-1	Dibromochloromethane	1.2	U	NR	ug/kg
79-00-5	1,1,2-Trichloroethane	1.2	U	NR	ug/kg
10061-02-6	trans-1,3-Dichloropropene	1.2	U	NR	ug/kg
75-25-2	Bromoform	1.2	U	NR	ug/kg
79-34-5	1,1,2,2-Tetrachloroethane	1.2	U	NR	ug/kg
127-18-4	Tetrachloroethene	1.2	U	NR	ug/kg
108-90-7	Chlorobenzene	1.2	U	NR	ug/kg
541-73-1	1,3-Dichlorobenzene	1.2	U	NR	ug/kg
95-50-1	1,2-Dichlorobenzene	1.2	U	NR	ug/kg
106-46-7	1,4-Dichlorobenzene	1.2	U	NR	ug/kg
1634-04-4	tert-Butyl methyl ether	1.2	U	NR	ug/kg
71-43-2	Benzene	1.2	U	NR	ug/kg
108-88-3	Toluene	1.2	U	NR	ug/kg
100-41-4	Ethylbenzene	1.2	U	NR	ug/kg
1330-20-7	Total xylenes	1.2	U	NR	ug/kg
110-56-5	1,4-Dichlorobutane-SS		141		% rec
98-08-8	a-Trifluorotoluene-SS		97		% rec

U = Compound analyzed for but not detected.
SS = Surrogate Standard reported as percent recovery.
NR = Not Required. This sample was analyzed by a modified EPA 8010/8020 Method.

Comments: Results reported on a dry-weight basis.

Reviewed by: WLK

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July 2, 1990

RDD28361.A0.30

Mr. Darrell Lance
CH2M HILL/LRD
5090 Caterpillar Road
Redding, California 96003

RE: Analytical Data for BLM Stateline Dump, Laboratory No. 16121

Dear Mr. Lance:

On June 8, 1990, the CH2M Hill Montgomery Laboratory received ten samples with a request for analysis of selected organic parameters.

The analytical results and associated quality control data are enclosed. Low levels of BHC pesticides were present in the EPTOX leachates of five samples. No BHCs were found when the sediments were analyzed directly. Valid re-extractions to resolve the analytical discrepancies could not be performed due to the expiration of sample holding times. All samples demonstrated good surrogate recovery, and therefore the BHCs reported for the leachates may be due to laboratory contamination. No other difficulties were encountered during the analysis of these samples.

If you should have any questions concerning the data, please inquire.

Sincerely,

Ward Dickens/HK

Ward Dickens
Organics Division Manager

Enclosures

cc: Mr. Craig Vinson

WLK
7/3/90

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ANALYTICAL METHODOLOGY

Organic Analysis

Priority Pollutants: Water, soil and waste samples are analyzed in accordance with procedures described in Methods 608, 624, and 625, EPA-600/4-82-057 (1982); Methods 8080, 8240, and 8270, Test Methods for Evaluating Solid Waste, 1986, SW-846, Third Edition; and methods outlined in the USEPA Contract Laboratory Program Statement of Work for Organics Analysis, February, 1988.

Volatile Analysis (Safe Drinking Water Act): Water samples are analyzed in accordance with procedures described in Method 524.2, Federal Register (50 FR 46902), November 13, 1985.

Chlorinated Phenoxyacid Herbicides: Samples are analyzed with procedures described in Method 8150, Test Methods for Evaluating Solid Waste, 1986, SW-846, Third Edition.

Organophosphate Pesticides: Samples are analyzed in accordance with procedures described in Methods 614 and 622, EPA-600/4-79-019 (1979) and in Method 8140, Test Methods for Evaluating Solid Waste, 1986, SW-846, Third Edition.

Phenol Analysis by GC: Samples are analyzed in accordance with procedures outlined in Method 604, Federal Register, 40 CFR, Part 136 (July 1, 1987) and in Method 8040, Test Methods for Evaluating Solid Waste, 1986, SW-846, Third Edition.

Polynuclear Aromatic Hydrocarbons (GC analysis): Samples are analyzed with procedures described in Method 610, Federal Register, 40 CFR, Part 136 (July 1, 1987) and in Method 8100, Test Methods for Evaluating Solid Waste, 1986, SW-846, Third Edition.

Ethylene Dibromide : Water samples are analyzed in accordance with procedures outlined in Method 504, Federal Register (50 FR 46902), November 13, 1985.

Trihalomethanes: Water samples are analyzed with procedures described in Method 501.2, Federal Register, Vol. 44, No. 231, Part II, November 29, 1979.

EPA - DEFINED QUALIFIERS

ORGANICS

Definitions for the EPA-defined qualifiers:

U -- Indicates the compound was analyzed for but not detected. The number adjacent to the "U" qualifier indicates the quantitation limit for that compound. The detection limit can vary from sample to sample depending on dilution factors or percent moisture adjustment when indicated.

J -- Indicates an estimated value. This flag is used when the mass spectral data indicates the presence of a compound below the stated PQL. The "J" qualifier is not used with pesticide results.

C -- This flag applies to pesticide results only. The "C" flag indicates the presence of this compound has been confirmed by GC/MS analysis.

B -- This flag is used when the analyte is found in the associated blank as well as the sample. This notation indicates possible blank contamination and suggests the data user evaluate these compounds and their amounts carefully.

E -- This flag applies to GC/MS only. The "E" qualifier indicates a compound may be above or below the linear range of the instrument. If the particular compound level is deemed above the linear calibration range, then the sample should be reanalyzed at an appropriate dilution. Therefore, the "E" qualified amount is an estimated concentration. The results for the dilution will be reported on a separate Form I and will be flagged with a "D" if the dilution brings the concentration within proper calibration.

D -- This flag identifies compounds which have been run at a dilution to bring the concentration of that compound within the linear range of the instrument. "D" qualifiers are only used for samples that have been run initially with results above acceptable ranges. For secondary dilutions the "DL" suffix is appended to the sample number on the Form I.

A -- Indicates the Tentatively Identified Compound (TIC) is a suspected aldol-condensation product.

X -- Indicates the compound concentration has been manually modified or the EPA qualifier has been manually modified or added.

JX -- This value is less than the sample quantitation limit that would have been displayed for "U".

CLIENT SAMPLE ID QUALIFIERS

LEVEL 1

The qualifiers that GC/MS uses with the client sample ID are defined below:

DL -- Dilution Run

R -- Rerun (may be followed by a digit to indicate multiple reruns)

RD -- Diluted Rerun

RX -- Re-extraction Analysis

MS -- Matrix Spike (may be followed by a digit to indicate multiple matrix spikes within a sample set)

MSD -- Matrix Spike Duplicate (may be followed by a digit to indicate multiple matrix spike duplicates within a sample set)

QC_BLANK -- Method Blank (may be followed by an **S** for soils run at a low level, **W** for waters, or **SM** for soils run at a medium level) (letters may be followed by a digit to indicate multiple blanks of that type; if there are no letters the digit indicates multiple blanks).

These qualifiers allow GC/MS to have unique client sample ID's so that the client can get more accurate information from the data reported.

TABLE 1

SAMPLE CROSS-REFERENCE SUMMARY

CH2M HILL Laboratory No. 16121

LMG Sample No.	LRD Sample No.	Sample Description			
16121001	26718001	SEDIMENT S-1	06/04/90	1345	SOIL
16121002	26718002	SEDIMENT S-2	06/04/90	1320	SOIL
16121003	26718003	SEDIMENT S-3	06/04/90	1410	SOIL
16121004	26718004	SEDIMENT S-4	06/04/90	1425	SOIL
16121005	26718005	SEDIMENT S-5	06/04/90	1520	SOIL
16121006	26718006	EPTOX S-1			
16121007	26718007	EPTOX S-2			
16121008	26718008	EPTOX S-3			
16121009	26718009	EPTOX S-4			
16121010	26718010	EPTOX S-5			

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ORGANICS ANALYSIS DATA SHEET

Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	06/11/90
Lab Sample ID:	16121001	Sample Matrix:	SOIL	Date Analyzed:	06/14/90
Client Sample ID:	S-1 SEDIMENT	Percent Moisture:	21	Dilution Factor:	1.0

PHENOLIC ACID COMPOUNDS

CAS Number		ug/Kg		CAS Number	ug/Kg
108-95-2	Phenol	63	U		
95-57-8	2-Chlorophenol	63	U		
95-48-7	ortho-Cresol	63	U		
106-44-5	para-Cresol &				
108-39-4	meta-Cresol.	63	U		
88-75-5	2-Nitrophenol	63	U		
105-67-9	2,4-Dimethylphenol	63	U		
120-83-2	2,4-Dichlorophenol	63	U		
59-50-7	4-Chloro-3-methylphenol .	63	U		
88-06-2	2,4,6-Trichlorophenol . .	63	U		
51-28-5	2,4-Dinitrophenol	130	U		
100-02-7	4-Nitrophenol	130	U		
534-52-1	4,6-Dinitro-2-methylphenol	130	U		
87-86-5	Pentachlorophenol	130	U		
	Tribromophenol SS	81			

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Comments:

Form I

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Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	06/11/90
Lab Sample ID:	16121002	Sample Matrix:	SOIL	Date Analyzed:	06/14/90
Client Sample ID:	S-2 SEDIMENT	Percent Moisture:	17	Dilution Factor:	1.0

PHENOLIC ACID COMPOUNDS

CAS Number		ug/Kg		CAS Number	ug/Kg
108-95-2	Phenol	60	U		
95-57-8	2-Chlorophenol	60	U		
95-48-7	ortho-Cresol	60	U		
106-44-5 108-39-4	para-Cresol & meta-Cresol.	60	U		
88-75-5	2-Nitrophenol	60	U		
105-67-9	2,4-Dimethylphenol	60	U		
120-83-2	2,4-Dichlorophenol	60	U		
59-50-7	4-Chloro-3-methylphenol .	60	U		
88-06-2	2,4,6-Trichlorophenol . .	60	U		
51-28-5	2,4-Dinitrophenol	120	U		
100-02-7	4-Nitrophenol	120	U		
534-52-1	4,6-Dinitro-2-methylphenol	120	U		
87-86-5	Pentachlorophenol	120	U		
	Tribromophenol SS	76			

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Comments:

Form I

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Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	06/11/90
Lab Sample ID:	16121003	Sample Matrix:	SOIL	Date Analyzed:	06/14/90
Client Sample ID:	S-3 SEDIMENT	Percent Moisture:	23	Dilution Factor:	1.0

PHENOLIC ACID COMPOUNDS

CAS Number		ug/Kg		CAS Number	ug/Kg
108-95-2	Phenol	65	U		
95-57-8	2-Chlorophenol	65	U		
95-48-7	ortho-Cresol	65	U		
106-44-5 108-39-4	para-Cresol & meta-Cresol.	65	U		
88-75-5	2-Nitrophenol	65	U		
105-67-9	2,4-Dimethylphenol	65	U		
120-83-2	2,4-Dichlorophenol	65	U		
59-50-7	4-Chloro-3-methylphenol .	65	U		
88-06-2	2,4,6-Trichlorophenol . .	65	U		
51-28-5	2,4-Dinitrophenol	130	U		
100-02-7	4-Nitrophenol	130	U		
534-52-1	4,6-Dinitro-2-methylphenol	130	U		
87-86-5	Pentachlorophenol	130	U		
	Tribromophenol SS	86			

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Comments:

Form I

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ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/MGM
Lab Sample ID: 16121004
Client Sample ID: S-4 SEDIMENT

Concentration: LOW
Sample Matrix: SOIL
Percent Moisture: 14

Date Extracted: 06/11/90
Date Analyzed: 06/14/90
Dilution Factor: 1.0

PHENOLIC ACID COMPOUNDS

CAS Number		ug/Kg		CAS Number	ug/Kg
108-95-2	Phenol	58	U		
95-57-8	2-Chlorophenol	58	U		
95-48-7	ortho-Cresol	58	U		
106-44-5	para-Cresol &				
108-39-4	meta-Cresol.	58	U		
88-75-5	2-Nitrophenol	58	U		
105-67-9	2,4-Dimethylphenol	58	U		
120-83-2	2,4-Dichlorophenol	58	U		
59-50-7	4-Chloro-3-methylphenol .	58	U		
88-06-2	2,4,6-Trichlorophenol . .	58	U		
51-28-5	2,4-Dinitrophenol	120	U		
100-02-7	4-Nitrophenol	120	U		
534-52-1	4,6-Dinitro-2-methylphenol	120	U		
87-86-5	Pentachlorophenol	120	U		
	Tribromophenol SS	84			

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Comments:

Form I

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ORGANICS ANALYSIS DATA SHEET

Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	06/11/90
Lab Sample ID:	16121005	Sample Matrix:	SOIL	Date Analyzed:	06/14/90
Client Sample ID:	S-5 SEDIMENT	Percent Moisture:	29	Dilution Factor:	1.0

PHENOLIC ACID COMPOUNDS

CAS Number		ug/Kg		CAS Number	ug/Kg
108-95-2	Phenol	70	U		
95-57-8	2-Chlorophenol	70	U		
95-48-7	ortho-Cresol	70	U		
106-44-5 108-39-4	para-Cresol & meta-Cresol	70	U		
88-75-5	2-Nitrophenol	70	U		
105-67-9	2,4-Dimethylphenol	70	U		
120-83-2	2,4-Dichlorophenol	70	U		
59-50-7	4-Chloro-3-methylphenol	70	U		
88-06-2	2,4,6-Trichlorophenol	70	U		
51-28-5	2,4-Dinitrophenol	140	U		
100-02-7	4-Nitrophenol	140	U		
534-52-1	4,6-Dinitro-2-methylphenol	140	U		
87-86-5	Pentachlorophenol	140	U		
	Tribromophenol SS	82			

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Comments:

Form I

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/MGM
Lab Sample ID: 16176003
Client Sample ID: S-6

Concentration: LOW
Sample Matrix: SOIL
Percent Moisture: 11

Date Extracted: 06/19/90
Date Analyzed: 06/27/90
Dilution Factor: 1.0

PHENOLIC ACID COMPOUNDS

CAS Number		ug/Kg		CAS Number	ug/Kg
108-95-2	Phenol	56	U		
95-57-8	2-Chlorophenol	56	U		
95-48-7	ortho-Cresol	56	U		
106-44-5 108-39-4	para-Cresol & meta-Cresol.	56	U		
88-75-5	2-Nitrophenol	56	U		
105-67-9	2,4-Dimethylphenol	56	U		
120-83-2	2,4-Dichlorophenol	56	U		
59-50-7	4-Chloro-3-methylphenol .	56	U		
88-06-2	2,4,6-Trichlorophenol . .	56	U		
51-28-5	2,4-Dinitrophenol	110	U		
100-02-7	4-Nitrophenol	110	U		
534-52-1	4,6-Dinitro-2-methylphenol	110	U		
87-86-5	Pentachlorophenol	110	U		
	Tribromophenol SS	93			

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form I

ORGANICS ANALYSIS DATA SHEET

Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	06/11/90
Lab Sample ID:	S06110B1	Sample Matrix:	SOIL	Date Analyzed:	06/14/90
Client Sample ID:	QC BLANK	Percent Moisture:	0.0	Dilution Factor:	1.0

PHENOLIC ACID COMPOUNDS

CAS Number		ug/Kg		CAS Number	ug/Kg
108-95-2	Phenol	50	U		
95-57-8	2-Chlorophenol	50	U		
95-48-7	ortho-Cresol	50	U		
106-44-5	para-Cresol &				
108-39-4	meta-Cresol.	50	U		
88-75-5	2-Nitrophenol	50	U		
105-67-9	2,4-Dimethylphenol	50	U		
120-83-2	2,4-Dichlorophenol	50	U		
59-50-7	4-Chloro-3-methylphenol .	50	U		
88-06-2	2,4,6-Trichlorophenol . .	50	U		
51-28-5	2,4-Dinitrophenol	100	U		
100-02-7	4-Nitrophenol	100	U		
534-52-1	4,6-Dinitro-2-methylphenol	100	U		
87-86-5	Pentachlorophenol	100	U		
	Tribromophenol SS	78			

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Comments:

Form I

ORGANICS ANALYSIS DATA SHEET

Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	06/12/90
Lab Sample ID:	16121001	Sample Matrix:	SOIL	Date Analyzed:	06/22/90
Client Sample ID:	S-1 SEDIMENT	Percent Moisture:	21	Dilution Factor:	1.0

PESTICIDE / PCB COMPOUNDS

CAS Number		ug/Kg	
319-84-6	alpha-BHC	1.0	U
319-85-7	beta-BHC	2.0	U
319-86-8	delta-BHC	1.0	U
58-89-9	gamma-BHC (Lindane)	1.0	U
76-44-8	Heptachlor	1.0	U
309-00-2	Aldrin	1.0	U
1024-57-3	Heptachlor Epoxide	1.0	U
959-98-8	Endosulfan I	2.0	U
60-57-1	Dieldrin	2.0	U
72-55-9	4,4′-DDE	2.0	U
72-20-8	Endrin	2.0	U
33213-65-9	Endosulfan II	2.0	U
72-54-8	4,4′-DDD	2.0	U
1031-07-8	Endosulfan Sulfate	2.0	U
50-29-3	4,4′-DDT	2.0	U
72-43-5	Methoxychlor	4.0	U
7421-93-4	Endrin Aldehyde	2.0	U
12789-03-6	Chlordane	10	U
8001-35-2	Toxaphene	51	U
12674-11-2	Aroclor-1016	81	U
11104-28-2	Aroclor-1221	200	U
11141-16-5	Aroclor-1232	200	U
53469-21-9	Aroclor-1242	81	U
12672-29-6	Aroclor-1248	40	U
11097-69-1	Aroclor-1254	20	U
11096-82-5	Aroclor-1260	20	U
	Dibutylchlorendate - SS	100	

CAS Number	ug/Kg

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form I

000007

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Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	06/12/90
Lab Sample ID:	16121002	Sample Matrix:	SOIL	Date Analyzed:	06/22/90
Client Sample ID:	S-2 SEDIMENT	Percent Moisture:	17	Dilution Factor:	1.0

PESTICIDE / PCB COMPOUNDS

CAS Number		ug/Kg		CAS Number	ug/Kg
319-84-6	alpha-BHC	1.0	U		
319-85-7	beta-BHC	1.9	U		
319-86-8	delta-BHC	1.0	U		
58-89-9	gamma-BHC (Lindane) . . .	1.0	U		
76-44-8	Heptachlor	1.0	U		
309-00-2	Aldrin	1.0	U		
1024-57-3	Heptachlor Epoxide . . .	1.0	U		
959-98-8	Endosulfan I	1.9	U		
60-57-1	Dieldrin	1.9	U		
72-55-9	4,4′-DDE	1.9	U		
72-20-8	Endrin	1.9	U		
33213-65-9	Endosulfan II	1.9	U		
72-54-8	4,4′-DDD	1.9	U		
1031-07-8	Endosulfan Sulfate . . .	1.9	U		
50-29-3	4,4′-DDT	1.9	U		
72-43-5	Methoxychlor	3.8	U		
7421-93-4	Endrin Aldehyde	1.9	U		
12789-03-6	Chlordane	9.6	U		
8001-35-2	Toxaphene	48	U		
12674-11-2	Aroclor-1016	77	U		
11104-28-2	Aroclor-1221	190	U		
11141-16-5	Aroclor-1232	190	U		
53469-21-9	Aroclor-1242	77	U		
12672-29-6	Aroclor-1248	38	U		
11097-69-1	Aroclor-1254	19	U		
11096-82-5	Aroclor-1260	19	U		
	Dibutylchlorendate - SS	105			

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

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Laboratory Name: CH2M HILL/MGM
Lab Sample ID: 16121003
Client Sample ID: S-3 SEDIMENT

Concentration: LOW
Sample Matrix: SOIL
Percent Moisture: 23

Date Extracted: 06/12/90
Date Analyzed: 06/22/90
Dilution Factor: 1.0

PESTICIDE / PCB COMPOUNDS

CAS Number		ug/Kg		CAS Number	ug/Kg
319-84-6	alpha-BHC	1.0	U		
319-85-7	beta-BHC	2.1	U		
319-86-8	delta-BHC	1.0	U		
58-89-9	gamma-BHC (Lindane) . . .	1.0	U		
76-44-8	Heptachlor	1.0	U		
309-00-2	Aldrin	1.0	U		
1024-57-3	Heptachlor Epoxide . . .	1.0	U		
959-98-8	Endosulfan I	2.1	U		
60-57-1	Dieldrin	2.1	U		
72-55-9	4,4'-DDE	2.1	U		
72-20-8	Endrin	2.1	U		
33213-65-9	Endosulfan II	2.1	U		
72-54-8	4,4'-DDD	2.1	U		
1031-07-8	Endosulfan Sulfate . . .	2.1	U		
50-29-3	4,4'-DDT	2.1	U		
72-43-5	Methoxychlor	4.2	U		
7421-93-4	Endrin Aldehyde	2.1	U		
12789-03-6	Chlordane	10	U		
8001-35-2	Toxaphene	52	U		
12674-11-2	Aroclor-1016	83	U		
11104-28-2	Aroclor-1221	210	U		
11141-16-5	Aroclor-1232	210	U		
53469-21-9	Aroclor-1242	83	U		
12672-29-6	Aroclor-1248	42	U		
11097-69-1	Aroclor-1254	21	U		
11096-82-5	Aroclor-1260	21	U		
	Dibutylchlorendate - SS	110			

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

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Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	06/12/90
Lab Sample ID:	16121004	Sample Matrix:	SOIL	Date Analyzed:	06/22/90
Client Sample ID:	S-4 SEDIMENT	Percent Moisture:	14	Dilution Factor:	1.0

PESTICIDE / PCB COMPOUNDS

CAS Number		ug/Kg		CAS Number	ug/Kg
319-84-6	alpha-BHC	0.9	U		
319-85-7	beta-BHC	1.9	U		
319-86-8	delta-BHC	0.9	U		
58-89-9	gamma-BHC (Lindane) . . .	0.9	U		
76-44-8	Heptachlor	0.9	U		
309-00-2	Aldrin	0.9	U		
1024-57-3	Heptachlor Epoxide . . .	0.9	U		
959-98-8	Endosulfan I	1.9	U		
60-57-1	Dieldrin	1.9	U		
72-55-9	4,4'-DDE	1.9	U		
72-20-8	Endrin	1.9	U		
33213-65-9	Endosulfan II	1.9	U		
72-54-8	4,4'-DDD	1.9	U		
1031-07-8	Endosulfan Sulfate . . .	1.9	U		
50-29-3	4,4'-DDT	1.9	U		
72-43-5	Methoxychlor	3.7	U		
7421-93-4	Endrin Aldehyde	1.9	U		
12789-03-6	Chlordane	9.3	U		
8001-35-2	Toxaphene	46	U		
12674-11-2	Aroclor-1016	74	U		
11104-28-2	Aroclor-1221	190	U		
11141-16-5	Aroclor-1232	190	U		
53469-21-9	Aroclor-1242	74	U		
12672-29-6	Aroclor-1248	37	U		
11097-69-1	Aroclor-1254	19	U		
11096-82-5	Aroclor-1260	19	U		

Dibutylchlorendate - SS 103

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

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aboratory Name: CH2M HILL/MGM
ab Sample ID: 16121005
lient Sample ID: S-5 SEDIMENT

Concentration: LOW
Sample Matrix: SOIL
Percent Moisture: 29

Date Extracted: 06/12/90
Date Analyzed: 06/22/90
Dilution Factor: 1.0

PESTICIDE / PCB COMPOUNDS

AS Number		ug/Kg	
19-84-6	alpha-BHC	1.1	U
19-85-7	beta-BHC	2.2	U
19-86-8	delta-BHC	1.1	U
8-89-9	gamma-BHC (Lindane)	1.1	U
6-44-8	Heptachlor	1.1	U
309-00-2	Aldrin	1.1	U
1024-57-3	Heptachlor Epoxide	1.1	U
959-98-8	Endosulfan I	2.2	U
60-57-1	Dieldrin	2.2	U
72-55-9	4,4'-DDE	2.2	U
72-20-8	Endrin	2.2	U
33213-65-9	Endosulfan II	2.2	U
72-54-8	4,4'-DDD	2.2	U
1031-07-8	Endosulfan Sulfate	2.2	U
50-29-3	4,4'-DDT	2.2	U
72-43-5	Methoxychlor	4.5	U
7421-93-4	Endrin Aldehyde	2.2	U
12789-03-6	Chlordane	11	U
8001-35-2	Toxaphene	56	U
12674-11-2	Aroclor-1016	90	U
11104-28-2	Aroclor-1221	220	U
11141-16-5	Aroclor-1232	220	U
53469-21-9	Aroclor-1242	90	U
12672-29-6	Aroclor-1248	45	U
11097-69-1	Aroclor-1254	22	U
11096-82-5	Aroclor-1260	22	U
	Dibutylchlorendate - SS	99	

CAS Number	ug/Kg

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

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Laboratory Name: CH2M HILL/MGM
Lab Sample ID: 16176003
Client Sample ID: S-6
Concentration: LOW
Sample Matrix: SOIL
Percent Moisture: 11
Date Extracted: 06/22/90
Date Analyzed: 06/30/90
Dilution Factor: 1.0

PESTICIDE / PCB COMPOUNDS

CAS Number		ug/Kg		CAS Number	ug/Kg
319-84-6	alpha-BHC	0.4	U		
319-85-7	beta-BHC	0.9	U		
319-86-8	delta-BHC	0.4	U		
58-89-9	gamma-BHC (Lindane) . . .	0.4	U		
76-44-8	Heptachlor	0.4	U		
309-00-2	Aldrin	0.4	U		
1024-57-3	Heptachlor Epoxide . . .	0.4	U		
959-98-8	Endosulfan I	0.9	U		
60-57-1	Dieldrin	0.9	U		
72-55-9	4,4'-DDE	0.9	U		
72-20-8	Endrin	0.9	U		
33213-65-9	Endosulfan II	0.9	U		
72-54-8	4,4'-DDD	0.9	U		
1031-07-8	Endosulfan Sulfate . . .	0.9	U		
50-29-3	4,4'-DDT	0.9	U		
72-43-5	Methoxychlor	1.8	U		
7421-93-4	Endrin Aldehyde	0.9	U		
12789-03-6	Chlordane	4.5	U		
8001-35-2	Toxaphene	22	U		
12674-11-2	Aroclor-1016	36	U		
11104-28-2	Aroclor-1221	90	U		
11141-16-5	Aroclor-1232	90	U		
53469-21-9	Aroclor-1242	36	U		
12672-29-6	Aroclor-1248	18	U		
11097-69-1	Aroclor-1254	9	U		
11096-82-5	Aroclor-1260	9	U		
	Dibutylchlorendate - SS	0			
	Tetrachloro-m-xylene - SS	112			

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

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Laboratory Name: CH2M HILL/MGM
Lab Sample ID: 16121006
Client Sample ID: S-1 EPTOX

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: ______

Date Extracted: 06/15/90
Date Analyzed: 06/22/90
Dilution Factor: 1.0

PESTICIDE / PCB COMPOUNDS

CAS Number		ug/L	
319-84-6	alpha-BHC	0.04	
319-85-7	beta-BHC	0.02	
319-86-8	delta-BHC	0.03	
58-89-9	gamma-BHC (Lindane)	0.06	
76-44-8	Heptachlor	0.01	U
309-00-2	Aldrin	0.01	U
1024-57-3	Heptachlor Epoxide	0.01	U
959-98-8	Endosulfan I	0.02	U
60-57-1	Dieldrin	0.02	U
72-55-9	4,4'-DDE	0.02	U
72-20-8	Endrin	0.02	U
33213-65-9	Endosulfan II	0.02	U
72-54-8	4,4'-DDD	0.02	U
1031-07-8	Endosulfan Sulfate	0.02	U
50-29-3	4,4'-DDT	0.02	U
72-43-5	Methoxychlor	0.04	U
7421-93-4	Endrin Aldehyde	0.02	U
12789-03-6	Chlordane	0.1	U
8001-35-2	Toxaphene	0.5	U
12674-11-2	Aroclor-1016	0.8	U
11104-28-2	Aroclor-1221	2	U
11141-16-5	Aroclor-1232	2	U
53469-21-9	Aroclor-1242	0.8	U
12672-29-6	Aroclor-1248	0.4	U
11097-69-1	Aroclor-1254	0.2	U
11096-82-5	Aroclor-1260	0.2	U
	Dibutylchlorendate - SS	93	

CAS Number	ug/L

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

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Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	06/15/90
Lab Sample ID:	16121007	Sample Matrix:	WATER	Date Analyzed:	06/22/90
Client Sample ID:	S-2 EPTOX	Percent Moisture:		Dilution Factor:	1.0

PESTICIDE / PCB COMPOUNDS

CAS Number		ug/L		CAS Number	ug/L
319-84-6	alpha-BHC	0.05			
319-85-7	beta-BHC	0.02			
319-86-8	delta-BHC	0.04			
58-89-9	gamma-BHC (Lindane)	0.1			
76-44-8	Heptachlor	0.01	U		
309-00-2	Aldrin	0.01	U		
1024-57-3	Heptachlor Epoxide	0.01	U		
959-98-8	Endosulfan I	0.02	U		
60-57-1	Dieldrin	0.02	U		
72-55-9	4,4'-DDE	0.02	U		
72-20-8	Endrin	0.02	U		
33213-65-9	Endosulfan II	0.02	U		
72-54-8	4,4'-DDD	0.02	U		
1031-07-8	Endosulfan Sulfate	0.02	U		
50-29-3	4,4'-DDT	0.02	U		
72-43-5	Methoxychlor	0.04	U		
7421-93-4	Endrin Aldehyde	0.02	U		
12789-03-6	Chlordane	0.1	U		
8001-35-2	Toxaphene	0.5	U		
12674-11-2	Aroclor-1016	0.8	U		
11104-28-2	Aroclor-1221	2	U		
11141-16-5	Aroclor-1232	2	U		
53469-21-9	Aroclor-1242	0.8	U		
12672-29-6	Aroclor-1248	0.4	U		
11097-69-1	Aroclor-1254	0.2	U		
11096-82-5	Aroclor-1260	0.2	U		
	Dibutylchlorendate - SS	105			

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

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Laboratory Name: CH2M HILL/MGM
Lab Sample ID: 16121008
Client Sample ID: S-3 EPTOX

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: ______

Date Extracted: 06/15/90
Date Analyzed: 06/22/90
Dilution Factor: 2.0

PESTICIDE / PCB COMPOUNDS

CAS Number		ug/L		CAS Number	ug/L
319-84-6	alpha-BHC	0.4			
319-85-7	beta-BHC	0.08			
319-86-8	delta-BHC	0.1			
58-89-9	gamma-BHC (Lindane) . . .	0.8			
76-44-8	Heptachlor	0.02	U		
309-00-2	Aldrin	0.02	U		
1024-57-3	Heptachlor Epoxide . . .	0.02	U		
959-98-8	Endosulfan I	0.04	U		
60-57-1	Dieldrin	0.04	U		
72-55-9	4,4'-DDE	0.04	U		
72-20-8	Endrin	0.04	U		
33213-65-9	Endosulfan II	0.04	U		
72-54-8	4,4'-DDD	0.04	U		
1031-07-8	Endosulfan Sulfate . . .	0.04	U		
50-29-3	4,4'-DDT	0.04	U		
72-43-5	Methoxychlor	0.08	U		
7421-93-4	Endrin Aldehyde	0.04	U		
12789-03-6	Chlordane	0.2	U		
8001-35-2	Toxaphene	1.0	U		
12674-11-2	Aroclor-1016	1.6	U		
11104-28-2	Aroclor-1221	4	U		
11141-16-5	Aroclor-1232	4	U		
53469-21-9	Aroclor-1242	1.6	U		
12672-29-6	Aroclor-1248	0.8	U		
11097-69-1	Aroclor-1254	0.4	U		
11096-82-5	Aroclor-1260	0.4	U		
	Dibutylchlorendate - SS	102			

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

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Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	06/15/90
Lab Sample ID:	16121009	Sample Matrix:	WATER	Date Analyzed:	06/22/90
Client Sample ID:	S-4 EPTOX	Percent Moisture:		Dilution Factor:	1.0

PESTICIDE / PCB COMPOUNDS

CAS Number		ug/L		CAS Number	ug/L
319-84-6	alpha-BHC	0.03			
319-85-7	beta-BHC	0.01	JX		
319-86-8	delta-BHC	0.03			
58-89-9	gamma-BHC (Lindane) . . .	0.05			
76-44-8	Heptachlor	0.01	U		
309-00-2	Aldrin	0.01	U		
1024-57-3	Heptachlor Epoxide . . .	0.01	U		
959-98-8	Endosulfan I	0.02	U		
60-57-1	Dieldrin	0.02	U		
72-55-9	4,4′-DDE	0.02	U		
72-20-8	Endrin	0.02	U		
33213-65-9	Endosulfan II	0.02	U		
72-54-8	4,4′-DDD	0.02	U		
1031-07-8	Endosulfan Sulfate . . .	0.02	U		
50-29-3	4,4′-DDT	0.02	U		
72-43-5	Methoxychlor	0.04	U		
7421-93-4	Endrin Aldehyde	0.02	U		
12789-03-6	Chlordane	0.1	U		
8001-35-2	Toxaphene	0.5	U		
12674-11-2	Aroclor-1016	0.8	U		
11104-28-2	Aroclor-1221	2	U		
11141-16-5	Aroclor-1232	2	U		
53469-21-9	Aroclor-1242	0.8	U		
12672-29-6	Aroclor-1248	0.4	U		
11097-69-1	Aroclor-1254	0.2	U		
11096-82-5	Aroclor-1260	0.2	U		
	Dibutylchlorendate - SS	92			

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

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Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	06/15/90
Lab Sample ID:	16121010	Sample Matrix:	WATER	Date Analyzed:	06/22/90
Client Sample ID:	S-5 EPTOX	Percent Moisture:		Dilution Factor:	1.0

PESTICIDE / PCB COMPOUNDS

CAS Number		ug/L		CAS Number	ug/L
319-84-6	alpha-BHC	0.06			
319-85-7	beta-BHC	0.02			
319-86-8	delta-BHC	0.03			
58-89-9	gamma-BHC (Lindane) . . .	0.1			
76-44-8	Heptachlor	0.01	U		
309-00-2	Aldrin	0.01	U		
1024-57-3	Heptachlor Epoxide . . .	0.01	U		
959-98-8	Endosulfan I	0.02	U		
60-57-1	Dieldrin	0.02	U		
72-55-9	4,4'-DDE	0.02	U		
72-20-8	Endrin	0.02	U		
33213-65-9	Endosulfan II	0.02	U		
72-54-8	4,4'-DDD	0.02	U		
1031-07-8	Endosulfan Sulfate . . .	0.02	U		
50-29-3	4,4'-DDT	0.02	U		
72-43-5	Methoxychlor	0.04	U		
7421-93-4	Endrin Aldehyde	0.02	U		
12789-03-6	Chlordane	0.1	U		
8001-35-2	Toxaphene	0.5	U		
12674-11-2	Aroclor-1016	0.8	U		
11104-28-2	Aroclor-1221	2	U		
11141-16-5	Aroclor-1232	2	U		
53469-21-9	Aroclor-1242	0.8	U		
12672-29-6	Aroclor-1248	0.4	U		
11097-69-1	Aroclor-1254	0.2	U		
11096-82-5	Aroclor-1260	0.2	U		
	Dibutylchlorendate - SS	86			

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

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ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/MGM
Lab Sample ID: 16176010
Client Sample ID: S-6-EPTOX

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: ______

Date Extracted: 06/26/90
Date Analyzed: 07/01/90
Dilution Factor: 1.0

PESTICIDE / PCB COMPOUNDS

CAS Number		ug/L	
319-84-6	alpha-BHC	0.06	
319-85-7	beta-BHC	0.04	
319-86-8	delta-BHC	0.06	
58-89-9	gamma-BHC (Lindane)	0.08	
76-44-8	Heptachlor	0.01	U
309-00-2	Aldrin	0.01	U
1024-57-3	Heptachlor Epoxide	0.01	U
959-98-8	Endosulfan I	0.02	U
60-57-1	Dieldrin	0.02	U
72-55-9	4,4'-DDE	0.02	U
72-20-8	Endrin	0.02	U
33213-65-9	Endosulfan II	0.02	U
72-54-8	4,4'-DDD	0.02	U
1031-07-8	Endosulfan Sulfate	0.02	U
50-29-3	4,4'-DDT	0.02	U
72-43-5	Methoxychlor	0.04	U
7421-93-4	Endrin Aldehyde	0.02	U
12789-03-6	Chlordane	0.1	U
8001-35-2	Toxaphene	0.5	U
12674-11-2	Aroclor-1016	0.8	U
11104-28-2	Aroclor-1221	2	U
11141-16-5	Aroclor-1232	2	U
53469-21-9	Aroclor-1242	0.8	U
12672-29-6	Aroclor-1248	0.4	U
11097-69-1	Aroclor-1254	0.2	U
11096-82-5	Aroclor-1260	0.2	U
	Dibutylchlorendate - SS	100	

CAS Number ug/L

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form I

Jwb

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/MGM
Lab Sample ID: S06120B1
Client Sample ID: QC BLANK

Concentration: LOW
Sample Matrix: SOIL
Percent Moisture: ______

Date Extracted: 06/12/90
Date Analyzed: 06/22/90
Dilution Factor: 1.0

PESTICIDE / PCB COMPOUNDS

CAS Number		ug/Kg		CAS Number	ug/Kg
319-84-6	alpha-BHC	0.8	U		
319-85-7	beta-BHC	1.6	U		
319-86-8	delta-BHC	0.8	U		
58-89-9	gamma-BHC (Lindane)	0.8	U		
76-44-8	Heptachlor	0.8	U		
309-00-2	Aldrin	0.8	U		
1024-57-3	Heptachlor Epoxide	0.8	U		
959-98-8	Endosulfan I	1.6	U		
60-57-1	Dieldrin	1.6	U		
72-55-9	4,4'-DDE	1.6	U		
72-20-8	Endrin	1.6	U		
33213-65-9	Endosulfan II	1.6	U		
72-54-8	4,4'-DDD	1.6	U		
1031-07-8	Endosulfan Sulfate	1.6	U		
50-29-3	4,4'-DDT	1.6	U		
72-43-5	Methoxychlor	3.2	U		
7421-93-4	Endrin Aldehyde	1.6	U		
12789-03-6	Chlordane	8	U		
8001-35-2	Toxaphene	40	U		
12674-11-2	Aroclor-1016	64	U		
11104-28-2	Aroclor-1221	160	U		
11141-16-5	Aroclor-1232	160	U		
53469-21-9	Aroclor-1242	64	U		
12672-29-6	Aroclor-1248	32	U		
11097-69-1	Aroclor-1254	16	U		
11096-82-5	Aroclor-1260	16	U		
	Dibutylchlorendate - SS	96			

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form I

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ORGANICS ANALYSIS DATA SHEET

Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	06/15/90
Lab Sample ID:	W06150B1	Sample Matrix:	WATER	Date Analyzed:	06/22/90
Client Sample ID:	QC BLANK	Percent Moisture:		Dilution Factor:	1.0

PESTICIDE / PCB COMPOUNDS

CAS Number		ug/L		CAS Number	ug/L
319-84-6	alpha-BHC	0.01	U		
319-85-7	beta-BHC	0.02	U		
319-86-8	delta-BHC	0.01	U		
58-89-9	gamma-BHC (Lindane) . . .	0.01	U		
76-44-8	Heptachlor	0.01	U		
309-00-2	Aldrin	0.01	U		
1024-57-3	Heptachlor Epoxide . . .	0.01	U		
959-98-8	Endosulfan I	0.02	U		
60-57-1	Dieldrin	0.02	U		
72-55-9	4,4′-DDE	0.02	U		
72-20-8	Endrin	0.02	U		
33213-65-9	Endosulfan II	0.02	U		
72-54-8	4,4′-DDD	0.02	U		
1031-07-8	Endosulfan Sulfate . . .	0.02	U		
50-29-3	4,4′-DDT	0.02	U		
72-43-5	Methoxychlor	0.04	U		
7421-93-4	Endrin Aldehyde	0.02	U		
12789-03-6	Chlordane	0.1	U		
8001-35-2	Toxaphene	0.5	U		
12674-11-2	Aroclor-1016	0.8	U		
11104-28-2	Aroclor-1221	2	U		
11141-16-5	Aroclor-1232	2	U		
53469-21-9	Aroclor-1242	0.8	U		
12672-29-6	Aroclor-1248	0.4	U		
11097-69-1	Aroclor-1254	0.2	U		
11096-82-5	Aroclor-1260	0.2	U		
	Dibutylchlorendate - SS	106			

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form I

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ORGANICS ANALYSIS DATA SHEET

Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	06124/90
Lab Sample ID:	16121001	Sample Matrix:	SOIL	Date Analyzed:	06/22/90
Client Sample ID:	S-1 SEDIMENT	Percent Moisture:	21	Dilution Factor:	1.0

ORGANOPHOSPHOROUS PESTICIDE COMPOUNDS

CAS Number		ug/Kg		CAS Number	ug/Kg
86-50-0	Azinophos methyl (Guthion). .	63	U		
35400-43-2	Bolstar (Sulprofos)	63	U		
2921-88-2	Chlorpyrifos	63	U		
56-72-4	Coumaphos	63	U		
8065-48-3	Demeton O & S	130	U		
333-41-5	Diazinon	63	U		
62-73-7	Dichlorvos	63	U		
298-04-4	Disulfoton	63	U		
13194-48-4	Ethoprop	63	U		
115-90-2	Fensulfothion	63	U		
55-38-9	Fenthion	63	U		
150-50-5	Merphos	NR			
7786-34-7	Mevinphos (Phosdrin)	63	U		
300-76-5	Naled	130	U		
298-00-0	Parathion methyl	63	U		
298-02-2	Phorate	63	U		
299-84-3	Ronnel	63	U		
961-11-5	Stirofos (Rabon)	63	U		
34643-46-4	Tokuthion (Prothiofos) . . .	63	U		
327-98-0	Trichlornate	63	U		

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Comments: NR - Not recovered during method validation at CH2M HILL.

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ORGANICS ANALYSIS DATA SHEET

Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	06/12/90
Lab Sample ID:	16121002	Sample Matrix:	SOIL	Date Analyzed:	06/22/90
Client Sample ID:	S-2 SEDIMENT	Percent Moisture:	17	Dilution Factor:	1.0

ORGANOPHOSPHOROUS PESTICIDE COMPOUNDS

CAS Number		ug/Kg		CAS Number	ug/Kg
86-50-0	Azinophos methyl (Guthion)	60	U		
35400-43-2	Bolstar (Sulprofos)	60	U		
2921-88-2	Chlorpyrifos	60	U		
56-72-4	Coumaphos	60	U		
8065-48-3	Demeton O & S	120	U		
333-41-5	Diazinon	60	U		
62-73-7	Dichlorvos	60	U		
298-04-4	Disulfoton	60	U		
13194-48-4	Ethoprop	60	U		
115-90-2	Fensulfothion	60	U		
55-38-9	Fenthion	60	U		
150-50-5	Merphos	NR			
7786-34-7	Mevinphos (Phosdrin)	60	U		
300-76-5	Naled	120	U		
298-00-0	Parathion methyl	60	U		
298-02-2	Phorate	60	U		
299-84-3	Ronnel	60	U		
961-11-5	Stirofos (Rabon)	60	U		
34643-46-4	Tokuthion (Prothiofos)	60	U		
327-98-0	Trichlornate	60	U		

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Comments: NR - Not recovered during method validation at CH2M HILL.

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ORGANICS ANALYSIS DATA SHEET

Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	06/12/90
Lab Sample ID:	16121003	Sample Matrix:	SOIL	Date Analyzed:	06/23/90
Client Sample ID:	S-3 SEDIMENT	Percent Moisture:	23	Dilution Factor:	1.0

ORGANOPHOSPHOROUS PESTICIDE COMPOUNDS

CAS Number		ug/Kg	
86-50-0	Azinophos methyl (Guthion)	65	U
35400-43-2	Bolstar (Sulprofos)	65	U
2921-88-2	Chlorpyrifos	65	U
56-72-4	Coumaphos	65	U
8065-48-3	Demeton O & S	130	U
333-41-5	Diazinon	65	U
62-73-7	Dichlorvos	65	U
298-04-4	Disulfoton	65	U
13194-48-4	Ethoprop	65	U
115-90-2	Fensulfothion	65	U
55-38-9	Fenthion	65	U
150-50-5	Merphos	NR	
7786-34-7	Mevinphos (Phosdrin)	65	U
300-76-5	Naled	130	U
298-00-0	Parathion methyl	65	U
298-02-2	Phorate	65	U
299-84-3	Ronnel	65	U
961-11-5	Stirofos (Rabon)	65	U
34643-46-4	Tokuthion (Prothiofos)	65	U
327-98-0	Trichlornate	65	U

CAS Number	ug/Kg

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Comments: NR - Not recovered during method validation at CH2M HILL.

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ORGANICS ANALYSIS DATA SHEET

Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	06/12/90
Lab Sample ID:	16121004	Sample Matrix:	SOIL	Date Analyzed:	06/23/90
Client Sample ID:	S-4 SEDIMENT	Percent Moisture:	14	Dilution Factor:	1.0

ORGANOPHOSPHOROUS PESTICIDE COMPOUNDS

CAS Number		ug/Kg		CAS Number	ug/Kg
86-50-0	Azinophos methyl (Guthion)	58	U		
35400-43-2	Bolstar (Sulprofos)	58	U		
2921-88-2	Chlorpyrifos	58	U		
56-72-4	Coumaphos	58	U		
8065-48-3	Demeton O & S	120	U		
333-41-5	Diazinon	58	U		
62-73-7	Dichlorvos	58	U		
298-04-4	Disulfoton	58	U		
13194-48-4	Ethoprop	58	U		
115-90-2	Fensulfothion	58	U		
55-38-9	Fenthion	58	U		
150-50-5	Merphos	NR			
7786-34-7	Mevinphos (Phosdrin)	58	U		
300-76-5	Naled	120	U		
298-00-0	Parathion methyl	58	U		
298-02-2	Phorate	58	U		
299-84-3	Ronnel	58	U		
961-11-5	Stirofos (Rabon)	58	U		
34643-46-4	Tokuthion (Prothiofos)	58	U		
327-98-0	Trichlornate	58	U		

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Comments: NR - Not recovered during method validation at CH2M HILL.

ORGANICS ANALYSIS DATA SHEET

Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	06/12/90
Lab Sample ID:	16121005	Sample Matrix:	SOIL	Date Analyzed:	06/23/90
Client Sample ID:	S-5 SEDIMENT	Percent Moisture:	29	Dilution Factor:	1.0

ORGANOPHOSPHOROUS PESTICIDE COMPOUNDS

CAS Number		ug/Kg		CAS Number	ug/Kg
86-50-0	Azinophos methyl (Guthion)	70	U		
35400-43-2	Bolstar (Sulprofos)	70	U		
2921-88-2	Chlorpyrifos	70	U		
56-72-4	Coumaphos	70	U		
8065-48-3	Demeton O & S	140	U		
333-41-5	Diazinon	70	U		
62-73-7	Dichlorvos	70	U		
298-04-4	Disulfoton	70	U		
13194-48-4	Ethoprop	70	U		
115-90-2	Fensulfothion	70	U		
55-38-9	Fenthion	70	U		
150-50-5	Merphos	NR			
7786-34-7	Mevinphos (Phosdrin)	70	U		
300-76-5	Naled	140	U		
298-00-0	Parathion methyl	70	U		
298-02-2	Phorate	70	U		
299-84-3	Ronnel	70	U		
961-11-5	Stirofos (Rabon)	70	U		
34643-46-4	Tokuthion (Prothiofos)	70	U		
327-98-0	Trichlornate	70	U		

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Comments: NR - Not recovered during method validation at CH2M HILL.

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ORGANICS ANALYSIS DATA SHEET

Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	06/22/90
Lab Sample ID:	16176003	Sample Matrix:	SOIL	Date Analyzed:	06/24/90
Client Sample ID:	S-6	Percent Moisture:	11	Dilution Factor:	1.0

ORGANOPHOSPHOROUS PESTICIDE COMPOUNDS

CAS Number		ug/Kg		CAS Number	ug/Kg
86-50-0	Azinophos methyl (Guthion). .	56	U		
3400-43-2	Bolstar (Sulprofos)	56	U		
221-88-2	Chlorpyrifos	56	U		
56-72-4	Coumaphos	56	U		
865-48-3	Demeton O & S	110	U		
33-41-5	Diazinon	56	U		
62-73-7	Dichlorvos	56	U		
28-04-4	Disulfoton	56	U		
1394-48-4	Ethoprop	56	U		
15-90-2	Fensulfothion	56	U		
5538-9	Fenthion	56	U		
19-50-5	Merphos	NR			
786-34-7	Mevinphos (Phosdrin)	56	U		
30-76-5	Naled	110	U		
28-00-0	Parathion methyl	56	U		
29-02-2	Phorate	56	U		
29-84-3	Ronnel	56	U		
96-11-5	Stirofos (Rabon)	56	U		
3443-46-4	Tokuthion (Prothiofos) . . .	56	U		
32-98-0	Trichlornate	56	U		

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Comments: NR - Not recovered during method validation at CH2M HILL.

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ORGANICS ANALYSIS DATA SHEET

Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	06/15/90
Lab Sample ID:	16121006	Sample Matrix:	WATER	Date Analyzed:	02/23/90
Client Sample ID:	S-1 EPTOX	Percent Moisture:		Dilution Factor:	1.0

ORGANOPHOSPHOROUS PESTICIDE COMPOUNDS

CAS Number		ug/L		CAS Number	ug/L
86-50-0	Azinophos methyl (Guthion). .	2	U		
35400-43-2	Bolstar (Sulprofos)	1	U		
2921-88-2	Chlorpyrifos	1	U		
56-72-4	Coumaphos	1	U		
8065-48-3	Demeton O & S	4	U		
333-41-5	Diazinon	1	U		
62-73-7	Dichlorvos	1	U		
298-04-4	Disulfoton	1	U		
13194-48-4	Ethoprop	1	U		
115-90-2	Fensulfothion	2	U		
55-38-9	Fenthion	1	U		
150-50-5	Merphos	NR			
7786-34-7	Mevinphos (Phosdrin)	1	U		
300-76-5	Naled	3	U		
298-00-0	Parathion methyl	1	U		
298-02-2	Phorate	1	U		
299-84-3	Ronnel	1	U		
961-11-5	Stirofos (Rabon)	1	U		
34643-46-4	Tokuthion (Prothiofos) . . .	1	U		
327-98-0	Trichlornate	1	U		

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Comments: NR - Not recovered during method validation at CH2M HILL.

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ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/MGM
Lab Sample ID: 16121007
Client Sample ID: S-2 EPTOX

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: ____

Date Extracted: 06/15/90
Date Analyzed: 06/23/90
Dilution Factor: 1.0

ORGANOPHOSPHOROUS PESTICIDE COMPOUNDS

CAS Number		ug/L		CAS Number	ug/L
86-50-0	Azinophos methyl (Guthion). .	2	U		
35400-43-2	Bolstar (Sulprofos)	1	U		
2921-88-2	Chlorpyrifos	1	U		
56-72-4	Coumaphos	1	U		
8065-48-3	Demeton O & S	4	U		
333-41-5	Diazinon	1	U		
62-73-7	Dichlorvos	1	U		
298-04-4	Disulfoton	1	U		
13194-48-4	Ethoprop	1	U		
115-90-2	Fensulfothion	2	U		
55-38-9	Fenthion	1	U		
150-50-5	Merphos	NR			
7786-34-7	Mevinphos (Phosdrin)	1	U		
300-76-5	Naled	3	U		
298-00-0	Parathion methyl	1	U		
298-02-2	Phorate	1	U		
299-84-3	Ronnel	1	U		
961-11-5	Stirofos (Rabon)	1	U		
34643-46-4	Tokuthion (Prothiofos) . . .	1	U		
327-98-0	Trichlornate	1	U		

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Comments: NR - Not recovered during method validation at CH2M HILL.

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ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/MGM
Lab Sample ID: 16121008
Client Sample ID: S-3 EPTOX
Concentration: LOW
Sample Matrix: WATER
Percent Moisture: ____
Date Extracted: 06/15/90
Date Analyzed: 06/23/90
Dilution Factor: 1.0

ORGANOPHOSPHOROUS PESTICIDE COMPOUNDS

CAS Number		ug/L	
86-50-0	Azinophos methyl (Guthion). .	2	U
35400-43-2	Bolstar (Sulprofos)	1	U
2921-88-2	Chlorpyrifos	1	U
56-72-4	Coumaphos	1	U
8065-48-3	Demeton O & S	4	U
333-41-5	Diazinon	1	U
62-73-7	Dichlorvos	1	U
298-04-4	Disulfoton	1	U
13194-48-4	Ethoprop	1	U
115-90-2	Fensulfothion	2	U
55-38-9	Fenthion	1	U
150-50-5	Merphos	NR	
7786-34-7	Mevinphos (Phosdrin)	1	U
300-76-5	Naled	3	U
298-00-0	Parathion methyl	1	U
298-02-2	Phorate	1	U
299-84-3	Ronnel	1	U
961-11-5	Stirofos (Rabon)	1	U
34643-46-4	Tokuthion (Prothiofos) . . .	1	U
327-98-0	Trichlornate	1	U

CAS Number	ug/L

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Comments: NR - Not recovered during method validation at CH2M HILL.

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ORGANICS ANALYSIS DATA SHEET

Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	06/15/90
Lab Sample ID:	16121009	Sample Matrix:	WATER	Date Analyzed:	06/23/90
Client Sample ID:	S-4 EPTOX	Percent Moisture:		Dilution Factor:	1.0

ORGANOPHOSPHOROUS PESTICIDE COMPOUNDS

CAS Number		ug/L		CAS Number	ug/L
86-50-0	Azinophos methyl (Guthion). .	2	U		
35400-43-2	Bolstar (Sulprofos)	1	U		
2921-88-2	Chlorpyrifos	1	U		
56-72-4	Coumaphos	1	U		
8065-48-3	Demeton O & S	4	U		
333-41-5	Diazinon	1	U		
62-73-7	Dichlorvos	1	U		
298-04-4	Disulfoton	1	U		
13194-48-4	Ethoprop	1	U		
115-90-2	Fensulfothion	2	U		
55-38-9	Fenthion	1	U		
150-50-5	Merphos	NR			
7786-34-7	Mevinphos (Phosdrin)	1	U		
300-76-5	Naled	3	U		
298-00-0	Parathion methyl	1	U		
298-02-2	Phorate	1	U		
299-84-3	Ronnel	1	U		
961-11-5	Stirofos (Rabon)	1	U		
34643-46-4	Tokuthion (Prothiofos) . . .	1	U		
327-98-0	Trichlornate	1	U		

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Comments: NR - Not recovered during method validation at CH2M HILL.

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ORGANICS ANALYSIS DATA SHEET

Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	06/15/90
Lab Sample ID:	16121010	Sample Matrix:	WATER	Date Analyzed:	06/23/90
Client Sample ID:	S-5 EPTOX	Percent Moisture:		Dilution Factor:	1.0

ORGANOPHOSPHOROUS PESTICIDE COMPOUNDS

CAS Number		ug/L		CAS Number	ug/L
86-50-0	Azinophos methyl (Guthion)	2	U		
35400-43-2	Bolstar (Sulprofos)	1	U		
2921-88-2	Chlorpyrifos	1	U		
56-72-4	Coumaphos	1	U		
8065-48-3	Demeton O & S	4	U		
333-41-5	Diazinon	1	U		
62-73-7	Dichlorvos	1	U		
298-04-4	Disulfoton	1	U		
13194-48-4	Ethoprop	1	U		
115-90-2	Fensulfothion	2	U		
55-38-9	Fenthion	1	U		
150-50-5	Merphos	NR			
7786-34-7	Mevinphos (Phosdrin)	1	U		
300-76-5	Naled	3	U		
298-00-0	Parathion methyl	1	U		
298-02-2	Phorate	1	U		
299-84-3	Ronnel	1	U		
961-11-5	Stirofos (Rabon)	1	U		
34643-46-4	Tokuthion (Prothiofos)	1	U		
327-98-0	Trichlornate	1	U		

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Comments: NR - Not recovered during method validation at CH2M HILL.

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/MGM
Lab Sample ID: 16176010
Client Sample ID: S-6-EPTOX

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: ____

Date Extracted: 06/19/90
Date Analyzed: 07/02/90
Dilution Factor: 1.0

ORGANOPHOSPHOROUS PESTICIDE COMPOUNDS

CAS Number		ug/L	
86-50-0	Azinophos methyl (Guthion). .	2	U
35400-43-2	Bolstar (Sulprofos)	1	U
2921-88-2	Chlorpyrifos	1	U
56-72-4	Coumaphos	1	U
8065-48-3	Demeton O & S	4	U
333-41-5	Diazinon	1	U
62-73-7	Dichlorvos	1	U
298-04-4	Disulfoton	1	U
563-12-2	Ethion	1	U
13194-48-4	Ethoprop	1	U
115-90-2	Fensulfothion	2	U
55-38-9	Fenthion	1	U
150-50-5	Merphos	NR	
7786-34-7	Mevinphos (Phosdrin)	1	U
300-76-5	Naled	3	U
56-38-2	Parathion ethyl	1	U
298-00-0	Parathion methyl	1	U
298-02-2	Phorate	1	U
299-84-3	Ronnel	1	U
961-11-5	Stirofos (Rabon)	1	U
34643-46-4	Tokuthion (Prothiofos) . . .	1	U
327-98-0	Trichlornate	1	U

CAS Number	ug/L

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Comments: NR - Not recovered during method validation at CH2M HILL.

Form I

CH2M HILL
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ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/MGM
Lab Sample ID: S06120B1
Client Sample ID: QC BLANK

Concentration: LOW
Sample Matrix: SOIL
Percent Moisture: _____

Date Extracted: 06/12/90
Date Analyzed: 06/22/90
Dilution Factor: 1.0

ORGANOPHOSPHOROUS PESTICIDE COMPOUNDS

CAS Number		ug/Kg	
86-50-0	Azinophos methyl (Guthion)	50	U
35400-43-2	Bolstar (Sulprofos)	50	U
2921-88-2	Chlorpyrifos	50	U
56-72-4	Coumaphos	50	U
8065-48-3	Demeton O & S	100	U
333-41-5	Diazinon	50	U
62-73-7	Dichlorvos	50	U
298-04-4	Disulfoton	50	U
13194-48-4	Ethoprop	50	U
115-90-2	Fensulfothion	50	U
55-38-9	Fenthion	50	U
150-50-5	Merphos	NR	
7786-34-7	Mevinphos (Phosdrin)	50	U
300-76-5	Naled	100	U
298-00-0	Parathion methyl	50	U
298-02-2	Phorate	50	U
299-84-3	Ronnel	50	U
961-11-5	Stirofos (Rabon)	50	U
34643-46-4	Tokuthion (Prothiofos)	50	U
327-98-0	Trichlornate	50	U

CAS Number	ug/Kg

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Comments: NR - Not recovered during method validation at CH2M HILL.

Form I

CH2M HILL
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ORGANICS ANALYSIS DATA SHEET

Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	06/15/90
Lab Sample ID:	W06150B1	Sample Matrix:	WATER	Date Analyzed:	06/22/90
Client Sample ID:	QC BLANK	Percent Moisture:		Dilution Factor:	1.0

ORGANOPHOSPHOROUS PESTICIDE COMPOUNDS

CAS Number		ug/L		CAS Number	ug/L
86-50-0	Azinophos methyl (Guthion). .	2	U		
35400-43-2	Bolstar (Sulprofos)	1	U		
2921-88-2	Chlorpyrifos	1	U		
56-72-4	Coumaphos	1	U		
8065-48-3	Demeton O & S	4	U		
333-41-5	Diazinon	1	U		
62-73-7	Dichlorvos	1	U		
298-04-4	Disulfoton	1	U		
13194-48-4	Ethoprop	1	U		
115-90-2	Fensulfothion	2	U		
55-38-9	Fenthion	1	U		
150-50-5	Merphos	NR			
7786-34-7	Mevinphos (Phosdrin)	1	U		
300-76-5	Naled	3	U		
298-00-0	Parathion methyl	1	U		
298-02-2	Phorate	1	U		
299-84-3	Ronnel	1	U		
961-11-5	Stirofos (Rabon)	1	U		
34643-46-4	Tokuthion (Prothiofos) . . .	1	U		
327-98-0	Trichlornate	1	U		

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
JX - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Comments: NR - Not recovered during method validation at CH2M HILL.

Form I

CH2M HILL QUALITY ANALYTICS

CHAIN OF CUSTODY RECORD RDD 28361.A0.30

LIMS

QC ext
~~QC~~ met
soil
~~Rec~~ Brenda
Lep
DIG
Jim

PROJECT NUMBER	~~RDD 28631.A0~~
PROJECT NAME	BLM Stateline Dump
CLIENT NAME	~~BLM~~ CH2M Hill / RDD
CLIENT ADDRESS AND PHONE NUMBER	
PROJECT MANAGER	Mr. Mike Smith / RDD
COPY TO:	Mr. Peter Lawson / RDD
REQUESTED COMP. DATE	Normal Turnaround
SAMPLING REQUIREMENTS	SDWA ☐ NPDES ☐ RCRA ☐ OTHER ___

FOR LAB USE ONLY

LAB# ~~26718~~ KRG

LAB# ~~10021~~ KRG 10121

PROJECT NO. RDD 28361.A0.30

ACK 6/13

VERIFIED CK 6/11/90

QUOTE#

BS

NO. OF SAMP

PG 1 OF 1

ANALYSES REQUESTED

STA NO.	DATE	TIME	COMP	GRAB	SOIL	SAMPLE DESCRIPTIONS (12 CHARACTERS)	# OF CONTAINERS	VOC: 8010/8020 6US3	8140 OPS OPX	~~TC~~ TC: TAL metals / METALS DV65	~~PPX~~ PPS 8080/~~8270~~ 8040 PL-SLX	% H2O	& #SW EPSS Hold SO PRO	Eptox extract	PPS PPX OPX OPS Post 608, 8140	H	# LMG	LAB I.D.
S-1	6/4/90	13:45			X	SEDIMENT	4	X	X	X	X	Y	Y			X	001	1
S-2	"	13:10			X	"	4	X	X	X	X	Y	Y			X	002	2
S-3	"	14:10			X	"	4	X	X	X	X	Y	Y			X	003	3
S-4	"	14:25			X	"	4	X	X	X	X	Y	Y			X	004	4
S-5	"	15:20			X	"	4	X	X	X	X	Y	Y			X	005	5
						S-1 Eptox								X	X		006	6
						S-2 Eptox								X	X		007	7
						S3 Eptox								X	X		008	8
						S4 Eptox								X	X		009	9
						S5 Eptox								X	X		010	10
						method Blank for soil				X							251	

REMARKS

Level 1 Report to Darrell Lanse

8140 on Soil 8080, 8040

608/8140 on Eptox extract

Analysis run on Eptox extract

DUE 6/25/90

sly

Soil	LEACHATE
OPS, OPX	EPSS
PPX, PPS	PPS PPX
PLS, PLX	OPX, OPS
	PLS, PLX

SAMPLED BY AND TITLE: Peter Lawson - Hydrogeologist	DATE/TIME 6/4/90 15:30	RELINQUISHED BY
RECEIVED BY: Jerry Ogilvie	DATE/TIME 6-5-90 8:00 AM	RELINQUISHED BY:
RECEIVED BY:	DATE/TIME 6/8/90 0900	RELINQUISHED BY:
RECEIVED BY LAB:	DATE/TIME 6/5/90 15:52	SAMPLE SHIPPED VIA UPS BUS [✓ FED-EX] [✓ HAND] OTHER ___
REMARKS		AIR BILL #

DATE/TIME 6/5/90 8:00 am

DATE/TIME 6/7/90 330

DATE/TIME

HAZWRAP/NEESA Y [✓ N]

QC LEVEL [✓ 1] 2 3

COC Y

ANA REQ Y

CUST SEAL N

ICE Y

TEMP Cool

Ph

SAMPLE COND. Good

CH2M HILL QUALITY ANALYTICS

CHAIN OF CUSTODY RECORD

PROJECT NUMBER: RDD28631.A0
PROJECT NAME: BLM Stateline Dump
CLIENT NAME: CH2M - Hill
PROJECT MANAGER: Mike Smith /RDD
COPY TO:
REQUESTED COMP. DATE: Normal
SAMPLING REQUIREMENTS: SDWA ☐ NPDES ☐ RCRA ☐ OTHER ____
CLIENT ADDRESS AND PHONE NUMBER: CH2M Hill /RDD

FOR LAB USE ONLY
LAB# 26811
LAB# 16176
PROJECT NO. RDD28631.A0
ACK
VERIFIED CK 6/20/90
QUOTE#
BS
NO. OF SAMP
PG 2 OF 6

ANALYSES REQUESTED

STA NO.	DATE	TIME	COMP	GRAB	SOIL	SAMPLE DESCRIPTIONS (12 CHARACTERS)	# OF CONTAINERS	VOCs (GVS3)	608/8080 (PPS PPX)	614/8140 (OPS OPX)	EP TOX (EPSS)	Metals (TG = TAL METALS)	~~Mo~~ Mo	SO4 (PLS PLX)	% H2O	~~EPSS~~ PPS (PPS PPX PPX)	OPS (OPS OPX OPX)	LAB ID
4	6/13/90	1100			X	S-6	1	X	X	X	X	X	X	X	l	003		3
						S-6-EPTOX						LEACHATE –	010			X	X	4
						method Blank						X						25
						Soil												

EPTOX LEACHATE – FROM 003 / ANALYZE FOR OPS PPS per P. Bitterman to SLy 6/19

REMARKS
Soil
Mo 8270
run 8040 per
Mona Jones
comments
Eptox extract – run
8080 / 8140 on extract

Soil – Fed Ex
HAZWRAP/NEESA Y [✓ N]
QC LEVEL [✓ 1] 2 3
COC yes
ICE yes
ANA REQ ✓
TEMP Cool
CUST SEAL ✓
PH —
SAMPLE COND. good

SAMPLED BY AND TITLE: Jeffrey C. Meiers
DATE/TIME: 6/13/90 1130
RECEIVED BY:
DATE/TIME:
RECEIVED BY: Bryan W. Burgess
DATE/TIME: 6/19/90 – 0900
RECEIVED BY LAB: Scott Whelen
DATE/TIME: 1300 6-15-90
REMARKS

RELINQUISHED BY: Jeffrey L. Meiers
DATE/TIME: 6/14/90 0730
RELINQUISHED BY:
DATE/TIME: 6/18/90 330
RELINQUISHED BY:
DATE/TIME:

SAMPLE SHIPPED VIA: UPS [✓ BUS] FED-EX HAND OTHER ____
AIR BILL# GREYHOUND 501001 114 771

ENTERED INTO LIMS AH COC AH

Appendix G
SURFACE-WATER SAMPLING ANALYTICAL DATA SHEETS

Sample results from the following sample locations are included in this appendix (see Figure 13 for sampling locations):

- SW-1
- SW-2
- SW-3
- SW-4
- SW-5

CASE NARRATIVE
General Chemistry
25841

I. Holding Time: All criteria met.

II. Analysis:

A.	Calibration:	Acceptance criteria met.
B.	Blanks:	Acceptance criteria met.
C.	Matrix Spike:	Acceptance criteria met.
D.	Duplicate Analysis:	Acceptance criteria met.
E.	Lab Control Sample:	Acceptance criteria met.
F.	Other:	None.

III. I certify that this data package is in compliance with the terms and conditions agreed to by the client and CH2M HILL, both technically and for completeness, for other than the conditions detailed above.

SIGNED: Randall Wright DATE: 3/26/90
Randall L. Wright
General Chemistry Supervisor

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CASE NARRATIVE
Metals

25841

I. Holding Time:
All holding times were met.

II. Analysis:

A. Blanks:
All acceptance criteria were met.

B. Calibration:
All acceptance criteria were met.

C. ICP Interference Check Sample:
Not applicable.

D. Spike Sample Analysis:
All acceptance criteria were met.

E. Duplicate Sample Analysis:
All acceptance criteria were met.

F. Laboratory Control Sample Analysis:
All acceptance criteria were met.

G. ICP Serial Dilution:
Not applicable.

H. Other:
None.

III. I certify that this data package is in compliance with the terms and conditions agreed to by the client and CH2M HILL, both technically and for completeness, for other than the conditions detailed above.

Signed: Fred Bickell Date: 3/26/90

Fred Bickell
Cations Supervisor

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REPORT OF ANALYTICAL RESULTS

Date: 03/26/90
Page: 1 of 5

Client: CH2M HILL/RDD
1525 COURT ST.
REDDING, CA 96001

Atten: MIKE SMITH

Project Number: RDD28631.A0.30
BLM STATELINE LANDFILL
Laboratory Number: 25841
Date Received: 02/23/90

Sample Description: SW-1
Laboratory Sample Number: 25841001 Date Collected: 02/22/90 Matrix: WATER

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
4AAP Phenol	EPA420.1	0.10	<0.10	mg/L	03/06/90
Silver	EPA200.7/SW6010	7	<7	ug/L	03/05/90
Aluminum	EPA200.7/SW6010	28	809	ug/L	03/05/90
Arsenic	EPA206.2/SW7060	2	<2	ug/L	02/28/90
Barium	EPA200.7/SW6010	1	72	ug/L	03/05/90
Beryllium	EPA200.7/SW6010	1	<1	ug/L	03/05/90
Calcium	EPA200.7/SW6010	94	99400	ug/L	03/05/90
Cadmium	EPA200.7/SW6010	2	<2	ug/L	03/05/90
Chloride	EPA325.3	1.0	10.9	mg/L	03/08/90
Cobalt	EPA200.7/SW6010	7	<7	ug/L	03/05/90
Chromium	EPA200.7/SW6010	3	<3	ug/L	03/05/90
Copper	EPA200.7/SW6010	4	<4	ug/L	03/05/90
Dissolved Organic Carbon	EPA415.2	1.0	37.4	mg/L	03/09/90
Fluoride	EPA340.2	0.05	0.20	mg/L	02/28/90
Iron	EPA200.7/SW6010	40	2250	ug/L	03/05/90
Mercury	EPA245.1/SW7470	0.2	<0.2	ug/L	03/13/90
Potassium	EPA200.7/SW6010	1000	6300	ug/L	03/05/90
Magnesium	EPA200.7/SW6010	50	89000	ug/L	03/05/90
Manganese	EPA200.7/SW6010	1	2970	ug/L	03/05/90
Sodium	EPA200.7/SW6010	200	91000	ug/L	03/05/90
Nickel	EPA200.7/SW6010	14	<14	ug/L	03/05/90
Lead	EPA239.2/SW7421	2.0	<2.0	ug/L	03/13/90
pH	EPA150.1	----	6.93	units	02/23/90
Antimony	EPA200.7/SW6010	20	<20	ug/L	03/05/90
Selenium	EPA270.2/SW7740	2	<2	ug/L	03/01/90
Sulfate	EPA375.4	1.0	<1.0	mg/L	03/09/90
Total Dissolved Solids	EPA160.1	3	951	mg/L	03/01/90
Thallium	EPA279.2/SW7841	0.6	<0.6	ug/L	03/13/90
Total Organic Carbon	EPA415.2	1.0	40.1	mg/L	03/09/90
Total Organic Halogen as CL-	SW846 9020	5	45	ug/L	03/13/90
Vanadium	EPA200.7/SW6010	3	11	ug/L	03/05/90
Zinc	EPA200.7/SW6010	6	8	ug/L	03/05/90

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

Reviewed by: Jim Hawley

INORGREP(v891205)

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REPORT OF ANALYTICAL RESULTS

Date: 03/26/90
Page: 2 of 5

Client: CH2M HILL/RDD
1525 COURT ST.
REDDING, CA 96001

Atten: MIKE SMITH

Project Number: RDD28631.A0.30
BLM STATELINE LANDFILL
Laboratory Number: 25841
Date Received: 02/23/90

Sample Description: SW-2
Laboratory Sample Number: 25841002 Date Collected: 02/23/90 Matrix: WATER

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
4AAP Phenol	EPA420.1	0.05	<0.05	mg/L	03/06/90
Silver	EPA200.7/SW6010	7	<7	ug/L	03/05/90
Aluminum	EPA200.7/SW6010	28	749	ug/L	03/05/90
Arsenic	EPA206.2/SW7060	2	<2	ug/L	02/28/90
Barium	EPA200.7/SW6010	1	45	ug/L	03/05/90
Beryllium	EPA200.7/SW6010	1	<1	ug/L	03/05/90
Calcium	EPA200.7/SW6010	94	6190	ug/L	03/05/90
Cadmium	EPA200.7/SW6010	2	<2	ug/L	03/05/90
Chloride	EPA325.3	1.0	2.0	mg/L	03/08/90
Cobalt	EPA200.7/SW6010	7	<7	ug/L	03/05/90
Chromium	EPA200.7/SW6010	3	<3	ug/L	03/05/90
Copper	EPA200.7/SW6010	4	5	ug/L	03/05/90
Dissolved Organic Carbon	EPA415.2	1.0	12.3	mg/L	03/09/90
Fluoride	EPA340.2	0.05	0.07	mg/L	02/28/90
Iron	EPA200.7/SW6010	40	961	ug/L	03/05/90
Mercury	EPA245.1/SW7470	0.2	<0.2	ug/L	03/13/90
Potassium	EPA200.7/SW6010	1000	2100	ug/L	03/05/90
Magnesium	EPA200.7/SW6010	50	2470	ug/L	03/05/90
Manganese	EPA200.7/SW6010	1	114	ug/L	03/05/90
Sodium	EPA200.7/SW6010	200	3490	ug/L	03/05/90
Nickel	EPA200.7/SW6010	14	<14	ug/L	03/05/90
Lead	EPA239.2/SW7421	2.0	<2.0	ug/L	03/13/90
pH	EPA150.1	----	6.70	units	02/23/90
Antimony	EPA200.7/SW6010	20	<20	ug/L	03/05/90
Selenium	EPA270.2/SW7740	2	<2	ug/L	03/01/90
Sulfate	EPA375.4	1.0	3.4	mg/L	03/09/90
Total Dissolved Solids	EPA160.1	3	72	mg/L	03/01/90
Thallium	EPA279.2/SW7841	0.6	<0.6	ug/L	03/13/90
Total Organic Carbon	EPA415.2	1.0	17.0	mg/L	03/09/90
Total Organic Halogen as CL-	SW846 9020	5	38	ug/L	03/13/90
Vanadium	EPA200.7/SW6010	3	8	ug/L	03/05/90
Zinc	EPA200.7/SW6010	6	18	ug/L	03/05/90

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

Reviewed by: Jim Hawley

INORGREP(v891205)

REPORT OF ANALYTICAL RESULTS

Date: 03/26/90
Page: 3 of 5

Client: CH2M HILL/RDD
1525 COURT ST.
REDDING, CA 96001

Atten: MIKE SMITH

Project Number: RDD28631.A0.30
BLM STATELINE LANDFILL
Laboratory Number: 25841
Date Received: 02/23/90

Sample Description: SW-3
Laboratory Sample Number: 25841003 Date Collected: 02/23/90 Matrix: WATER

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
4AAP Phenol	EPA420.1	0.05	<0.05	mg/L	03/06/90
Silver	EPA200.7/SW6010	7	<7	ug/L	03/05/90
Aluminum	EPA200.7/SW6010	28	404	ug/L	03/05/90
Arsenic	EPA206.2/SW7060	2	3.1	ug/L	02/28/90
Barium	EPA200.7/SW6010	1	27	ug/L	03/05/90
Beryllium	EPA200.7/SW6010	1	<1	ug/L	03/05/90
Calcium	EPA200.7/SW6010	94	10400	ug/L	03/05/90
Cadmium	EPA200.7/SW6010	2	<2	ug/L	03/05/90
Chloride	EPA325.3	1.0	4.9	mg/L	03/08/90
Cobalt	EPA200.7/SW6010	7	<7	ug/L	03/05/90
Chromium	EPA200.7/SW6010	3	<3	ug/L	03/05/90
Copper	EPA200.7/SW6010	4	5	ug/L	03/05/90
Dissolved Organic Carbon	EPA415.2	1.0	15.4	mg/L	03/09/90
Fluoride	EPA340.2	0.05	0.12	mg/L	02/28/90
Iron	EPA200.7/SW6010	40	597	ug/L	03/05/90
Mercury	EPA245.1/SW7470	0.2	<0.2	ug/L	03/13/90
Potassium	EPA200.7/SW6010	1000	2600	ug/L	03/05/90
Magnesium	EPA200.7/SW6010	50	4720	ug/L	03/05/90
Manganese	EPA200.7/SW6010	1	48	ug/L	03/05/90
Sodium	EPA200.7/SW6010	200	10900	ug/L	03/05/90
Nickel	EPA200.7/SW6010	14	<14	ug/L	03/05/90
Lead	EPA239.2/SW7421	2.0	<2.0	ug/L	03/13/90
pH	EPA150.1	----	9.38	units	02/23/90
Antimony	EPA200.7/SW6010	20	<20	ug/L	03/05/90
Selenium	EPA270.2/SW7740	2	<2	ug/L	03/01/90
Sulfate	EPA375.4	1.0	8.8	mg/L	03/09/90
Total Dissolved Solids	EPA160.1	3	135	mg/L	03/01/90
Thallium	EPA279.2/SW7841	0.6	<0.6	ug/L	03/13/90
Total Organic Carbon	EPA415.2	1.0	14.7	mg/L	03/09/90
Total Organic Halogen as CL-	SW846 9020	5	210000	ug/L	03/13/90
Vanadium	EPA200.7/SW6010	3	15	ug/L	03/05/90
Zinc	EPA200.7/SW6010	6	6	ug/L	03/05/90

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

Reviewed by: Jim Hawley

INORGREP(v891205)

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REPORT OF ANALYTICAL RESULTS

Date: 03/26/90
Page: 4 of 5

Client: CH2M HILL/RDD
1525 COURT ST.
REDDING, CA 96001

Atten: MIKE SMITH

Project Number: RDD28631.A0.30
BLM STATELINE LANDFILL
Laboratory Number: 25841
Date Received: 02/23/90

Sample Description: SW-4
Laboratory Sample Number: 25841004 Date Collected: 02/23/90 Matrix: WATER

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
4AAP Phenol	EPA420.1	0.05	<0.05	mg/L	03/06/90
Silver	EPA200.7/SW6010	7	<7	ug/L	03/05/90
Aluminum	EPA200.7/SW6010	28	3320	ug/L	03/05/90
Arsenic	EPA206.2/SW7060	2	4.4	ug/L	02/28/90
Barium	EPA200.7/SW6010	1	218	ug/L	03/05/90
Beryllium	EPA200.7/SW6010	1	<1	ug/L	03/05/90
Calcium	EPA200.7/SW6010	94	18300	ug/L	03/05/90
Cadmium	EPA200.7/SW6010	2	<2	ug/L	03/05/90
Chloride	EPA325.3	1.0	6.2	mg/L	03/08/90
Cobalt	EPA200.7/SW6010	7	10	ug/L	03/05/90
Chromium	EPA200.7/SW6010	3	<3	ug/L	03/05/90
Copper	EPA200.7/SW6010	4	12	ug/L	03/05/90
Dissolved Organic Carbon	EPA415.2	1.0	17.0	mg/L	03/09/90
Fluoride	EPA340.2	0.05	0.08	mg/L	02/28/90
Iron	EPA200.7/SW6010	40	5390	ug/L	03/05/90
Mercury	EPA245.1/SW7470	0.2	<0.2	ug/L	03/13/90
Potassium	EPA200.7/SW6010	1000	8400	ug/L	03/05/90
Magnesium	EPA200.7/SW6010	50	7830	ug/L	03/05/90
Manganese	EPA200.7/SW6010	1	856	ug/L	03/05/90
Sodium	EPA200.7/SW6010	200	8550	ug/L	03/05/90
Nickel	EPA200.7/SW6010	14	<14	ug/L	03/05/90
Lead	EPA239.2/SW7421	2.0	2.9	ug/L	03/13/90
pH	EPA150.1	----	6.86	units	02/23/90
Antimony	EPA200.7/SW6010	20	<20	ug/L	03/05/90
Selenium	EPA270.2/SW7740	2	<2	ug/L	03/01/90
Sulfate	EPA375.4	1.0	4.8	mg/L	03/09/90
Total Dissolved Solids	EPA160.1	3	148	mg/L	03/01/90
Thallium	EPA279.2/SW7841	0.6	<0.6	ug/L	03/13/90
Total Organic Carbon	EPA415.2	1.0	27.3	mg/L	03/09/90
Total Organic Halogen as CL-	SW846 9020	5	91	ug/L	03/13/90
Vanadium	EPA200.7/SW6010	3	43	ug/L	03/05/90
Zinc	EPA200.7/SW6010	6	40	ug/L	03/05/90

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

Reviewed by: Jim Hawley

INORGREP(v891205)

REPORT OF ANALYTICAL RESULTS

Date: 03/26/90

Client: CH2M HILL/RDD
1525 COURT ST.
REDDING, CA 96001

Atten: MIKE SMITH

Project Number: RDD28631.A0.30
BLM STATELINE LANDFILL
Laboratory Number: 25841
Date Received: 02/23/90

Sample Description: SW-5
Laboratory Sample Number: 25841005 Date Collected: 02/23/90 Matrix: WATER

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
4AAP Phenol	EPA420.1	0.05	<0.05	mg/L	03/06/90
Silver	EPA200.7/SW6010	7	<7	ug/L	03/05/90
Aluminum	EPA200.7/SW6010	28	88	ug/L	03/05/90
Arsenic	EPA206.2/SW7060	2	<2	ug/L	02/28/90
Barium	EPA200.7/SW6010	1	9	ug/L	03/05/90
Beryllium	EPA200.7/SW6010	1	<1	ug/L	03/05/90
Calcium	EPA200.7/SW6010	94	18100	ug/L	03/05/90
Cadmium	EPA200.7/SW6010	2	<2	ug/L	03/05/90
Chloride	EPA325.3	1.0	2.8	mg/L	03/08/90
Cobalt	EPA200.7/SW6010	7	<7	ug/L	03/05/90
Chromium	EPA200.7/SW6010	3	<3	ug/L	03/05/90
Copper	EPA200.7/SW6010	4	<4	ug/L	03/05/90
Dissolved Organic Carbon	EPA415.2	1.0	2.5	mg/L	03/09/90
Fluoride	EPA340.2	0.05	0.07	mg/L	02/28/90
Iron	EPA200.7/SW6010	40	331	ug/L	03/05/90
Mercury	EPA245.1/SW7470	0.2	<0.2	ug/L	03/13/90
Potassium	EPA200.7/SW6010	1000	1700	ug/L	03/05/90
Magnesium	EPA200.7/SW6010	50	9950	ug/L	03/05/90
Manganese	EPA200.7/SW6010	1	72	ug/L	03/05/90
Sodium	EPA200.7/SW6010	200	8210	ug/L	03/05/90
Nickel	EPA200.7/SW6010	14	<14	ug/L	03/05/90
Lead	EPA239.2/SW7421	2.0	<2.0	ug/L	03/13/90
pH	EPA150.1	----	8.63	units	02/23/90
Antimony	EPA200.7/SW6010	20	<20	ug/L	03/05/90
Selenium	EPA270.2/SW7740	2	<2	ug/L	03/01/90
Sulfate	EPA375.4	1.0	2.6	mg/L	03/09/90
Total Dissolved Solids	EPA160.1	3	138	mg/L	03/01/90
Thallium	EPA279.2/SW7841	0.6	<0.6	ug/L	03/13/90
Total Organic Carbon	EPA415.2	1.0	2.5	mg/L	03/09/90
Total Organic Halogen as CL-	SW846 9020	5	94	ug/L	03/13/90
Vanadium	EPA200.7/SW6010	3	10	ug/L	03/05/90
Zinc	EPA200.7/SW6010	6	<6	ug/L	03/05/90

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

Reviewed by: Jim Hawley

INORGREP(v891205)

CH2M HILL
Engineers
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Scientists

REPORT OF ANALYTICAL RESULTS

Date: 03/22/90

Client: CH2M HILL/RDD
1525 COURT ST.
REDDING, CA 96001

Atten: MIKE SMITH

Project Number: RDD2863.AO.30
BLM STATELINE LANDFILL
Laboratory Number: 25841
Date Received: 02/23/90

Sample Description: METHOD BLANK
Laboratory Sample Number: 25841ZW1 Date Collected: Matrix: WATER

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
4AAP Phenol	EPA420.1	0.05	<0.05	mg/L	03/06/90
Chloride	EPA325.3	1.0	<1.0	mg/L	03/08/90
Dissolved Organic Carbon	EPA415.2	1.0	<1.0	mg/L	03/09/90
Fluoride	EPA340.2	0.05	<0.05	mg/L	02/28/90
Sulfate	EPA375.4	1.0	<1.0	mg/L	03/09/90
Total Organic Carbon	EPA415.2	1.0	<1.0	mg/L	03/09/90
Aluminum	EPA200.7/SW6010	28	<28	ug/L	03/05/90
Antimony	EPA200.7/SW6010	20	<20	ug/L	03/05/90
Arsenic	EPA206.2/SW7060	2	<2	ug/L	02/28/90
Barium	EPA200.7/SW6010	1	<1	ug/L	03/05/90
Beryllium	EPA200.7/SW6010	1	<1	ug/L	03/05/90
Cadmium	EPA200.7/SW6010	2	<2	ug/L	03/05/90
Calcium	EPA200.7/SW6010	50	94	ug/L	03/05/90
Chromium	EPA200.7/SW6010	3	<3	ug/L	03/05/90
Cobalt	EPA200.7/SW6010	7	<7	ug/L	03/05/90
Copper	EPA200.7/SW6010	4	<4	ug/L	03/05/90
Iron	EPA200.7/SW6010	40	<40	ug/L	03/05/90
Lead	EPA239.2/SW7421	2	<2	ug/L	03/13/90
Magnesium	EPA200.7/SW6010	50	<50	ug/L	03/05/90
Manganese	EPA200.7/SW6010	1	<1	ug/L	03/05/90
Mercury	EPA245.1/SW7470	0.2	<0.2	ug/L	03/13/90
Potassium	EPA200.7/SW6010	1000	<1000	ug/L	03/05/90
Nickel	EPA220.7/SW6010	14	<14	ug/L	03/05/90
Selenium	EPA270.2/SW7740	2	<2	ug/L	03/01/90
Silver	EPA200.7/SW6010	7	<7	ug/L	03/05/90
Sodium	EPA200.7/SW6010	200	<200	ug/L	03/05/90
Thallium	EPA279.2/SW7841	2	<2	ug/L	03/13/90
Vanadium	EPA200.7.SW6010	3	<3	ug/L	03/05/90
Zinc	EPA200.7/SW6010	6	<6	ug/L	03/05/90

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

Reviewed: Jim Hawley

CASE NARRATIVE FOR VOLATILE GAS CHROMATOGRAPHY SAMPLES

LABORATORY: CH2M HILL

CLIENT : Bureau of Land Management

CASE NO : N/A

CONTRACT NO.: N/A

LAB ID : 25841

SDG # : N/A

I. RECEIPT

A. Date: February 23, 1990

B.

LAB ID	CLIENT ID	SAMPLE MATRIX	DATE SAMPLED	EXTRACTION DATE	ANALYSIS DATE
25841001	SW-1	Water	2/22/90	N/A	3/1/90
25841002	SW-2	Water	2/23/90	N/A	3/2/90
25841003	SW-3	Water	2/23/90	N/A	3/2,8/90
25841004	SW-4	Water	2/23/90	N/A	3/6/90
25841005	SW-5	Water	2/23/90	N/A	3/2/90

C. Documentation Exceptions : None encountered.

II. EXTRACTION

A. Holding Times: Medium level protocol was not performed, therefore, extraction time is not applicable.

B. Extraction Exceptions : Not applicable.

III. ANALYSIS

A. Holding Times: All holding times were met.

B. Analytical Exceptions : None encountered.

IV. QUALITY CONTROL

A. Method Blank : A method blank is a laboratory generated sample used to determine the degree to which laboratory operations may cause false positive results for these samples. No target parameters were detected in the method blanks associated with these samples.

B. Surrogate Recoveries : All samples met acceptable QC criteria.

C. Matrix Spike Results: Not applicable.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature. Diskette deliverables have not be provided for this data package.

Greg Jordan 3/15/90

Greg Jordan **Date**
GC Section Supervisor

METHOD: 601/8010 (Volatile Halocarbons)

Reference No: Method Blank

Sample Matrix: Water
Dilution Factor: 1

Date Analyzed: 03-01-90

Compounds	Detection Limit	Method Blank Result	Units
Chloromethane	1	< 1	ug/l
Bromomethane	1	< 1	ug/l
Dichlorodifluoromethane	1	< 1	ug/l
Vinyl chloride	1	< 1	ug/l
Chloroethane	1	< 1	ug/l
Methylene chloride	1	< 1	ug/l
Trichlorofluoromethane	1	< 1	ug/l
1,1-Dichloroethene	1	< 1	ug/l
1,1-Dichloroethane	1	< 1	ug/l
trans-1,2-Dichloroethene	1	< 1	ug/l
Chloroform	1	< 1	ug/l
1,2-Dichloroethane	1	< 1	ug/l
1,1,1-Trichloroethane	1	< 1	ug/l
Carbon tetrachloride	1	< 1	ug/l
Bromodichloromethane	1	< 1	ug/l
1,2-Dichloropropane	1	< 1	ug/l
cis-1,3-Dichloropropene	1	< 1	ug/l
Trichloroethene	1	< 1	ug/l
Dibromochloromethane	1	< 1	ug/l
1,1,2-Trichloroethane	1	< 1	ug/l
trans-1,3-Dichloropropene	1	< 1	ug/l
Bromoform	1	< 1	ug/l
1,1,2,2-Tetrachloroethane	1	< 1	ug/l
Tetrachloroethene	1	< 1	ug/l
Chlorobenzene	1	< 1	ug/l
1,3-Dichlorobenzene	1	< 1	ug/l
1,2-Dichlorobenzene	1	< 1	ug/l
1,4-Dichlorobenzene	1	< 1	ug/l
Surrogate (SS)		108	% Rec.

SS - Surrogate Standard reported as percent recovery.
Bromochloromethane used as surrogate standard.

Comments:

Approved By: Greg Jordan

METHOD: EPA 602/8020 (Volatile Aromatics)

Sample Matrix: Water
Dilution Factor: 1

Reference No: Method Blank

Date Analyzed: 03-01-90

Compounds	Detection Limit	Method Blank Result	Units
tert-butyl methyl ether	1	< 1	ug/l
Benzene	1	< 1	ug/l
Toluene	1	< 1	ug/l
Chlorobenzene	1	< 1	ug/l
Ethyl benzene	1	< 1	ug/l
Total Xylenes	1	< 1	ug/l
1,3-Dichlorobenzene	1	< 1	ug/l
1,2-Dichlorobenzene	1	< 1	ug/l
1,4-Dichlorobenzene	1	< 1	ug/l
Surrogate (SS)		101	% Rec.

SS - Surrogate Standard reported as percent recovery.
Trifluorotoluene used as surrogate standard.

Comments:

Approved By: Greg Jordan

CH2M HILL Engineers Planners Economists Scientists

METHOD: 601/8010 (Volatile Halocarbons)

Reference No: Method Blank

Sample Matrix: Water
Dilution Factor: 1

Date Analyzed: 03-06-90

Compounds	Detection Limit	Method Blank Result	Units
Chloromethane	1	< 1	ug/l
Bromomethane	1	< 1	ug/l
Dichlorodifluoromethane	1	< 1	ug/l
Vinyl chloride	1	< 1	ug/l
Chloroethane	1	< 1	ug/l
Methylene chloride	1	< 1	ug/l
Trichlorofluoromethane	1	< 1	ug/l
1,1-Dichloroethene	1	< 1	ug/l
1,1-Dichloroethane	1	< 1	ug/l
trans-1,2-Dichloroethene	1	< 1	ug/l
Chloroform	1	< 1	ug/l
1,2-Dichloroethane	1	< 1	ug/l
1,1,1-Trichloroethane	1	< 1	ug/l
Carbon tetrachloride	1	< 1	ug/l
Bromodichloromethane	1	< 1	ug/l
1,2-Dichloropropane	1	< 1	ug/l
cis-1,3-Dichloropropene	1	< 1	ug/l
Trichloroethene	1	< 1	ug/l
Dibromochloromethane	1	< 1	ug/l
1,1,2-Trichloroethane	1	< 1	ug/l
trans-1,3-Dichloropropene	1	< 1	ug/l
Bromoform	1	< 1	ug/l
1,1,2,2-Tetrachloroethane	1	< 1	ug/l
Tetrachloroethene	1	< 1	ug/l
Chlorobenzene	1	< 1	ug/l
1,3-Dichlorobenzene	1	< 1	ug/l
1,2-Dichlorobenzene	1	< 1	ug/l
1,4-Dichlorobenzene	1	< 1	ug/l
Surrogate (SS)		105	% Rec.

SS - Surrogate Standard reported as percent recovery.
Bromochloromethane used as surrogate standard.

Comments:

Approved By: Greg Jordan

METHOD: EPA 602/8020 (Volatile Aromatics)

Reference No: Method Blank

Sample Matrix: Water
Dilution Factor: 1

Date Analyzed: 03-06-90

Compounds	Detection Limit	Method Blank Result	Units
tert-butyl methyl ether	1	< 1	ug/l
Benzene	1	< 1	ug/l
Toluene	1	< 1	ug/l
Chlorobenzene	1	< 1	ug/l
Ethyl benzene	1	< 1	ug/l
Total Xylenes	1	< 1	ug/l
1,3-Dichlorobenzene	1	< 1	ug/l
1,2-Dichlorobenzene	1	< 1	ug/l
1,4-Dichlorobenzene	1	< 1	ug/l
Surrogate (SS)		101	% Rec.

SS - Surrogate Standard reported as percent recovery.
Trifluorotoluene used as surrogate standard.

Comments:

Approved By: Greg Jordan

METHOD: 601/8010 (Volatile Halocarbons)

Reference No: Method Blank

Sample Matrix: Water
Dilution Factor: 1

Date Analyzed: 03-08-90

Compounds	Detection Limit	Method Blank Result	Units
Chloromethane	1	< 1	ug/l
Bromomethane	1	< 1	ug/l
Dichlorodifluoromethane	1	< 1	ug/l
Vinyl chloride	1	< 1	ug/l
Chloroethane	1	< 1	ug/l
Methylene chloride	1	< 1	ug/l
Trichlorofluoromethane	1	< 1	ug/l
1,1-Dichloroethene	1	< 1	ug/l
1,1-Dichloroethane	1	< 1	ug/l
trans-1,2-Dichloroethene	1	< 1	ug/l
Chloroform	1	< 1	ug/l
1,2-Dichloroethane	1	< 1	ug/l
1,1,1-Trichloroethane	1	< 1	ug/l
Carbon tetrachloride	1	< 1	ug/l
Bromodichloromethane	1	< 1	ug/l
1,2-Dichloropropane	1	< 1	ug/l
cis-1,3-Dichloropropene	1	< 1	ug/l
Trichloroethene	1	< 1	ug/l
Dibromochloromethane	1	< 1	ug/l
1,1,2-Trichloroethane	1	< 1	ug/l
trans-1,3-Dichloropropene	1	< 1	ug/l
Bromoform	1	< 1	ug/l
1,1,2,2-Tetrachloroethane	1	< 1	ug/l
Tetrachloroethene	1	< 1	ug/l
Chlorobenzene	1	< 1	ug/l
1,3-Dichlorobenzene	1	< 1	ug/l
1,2-Dichlorobenzene	1	< 1	ug/l
1,4-Dichlorobenzene	1	< 1	ug/l
Surrogate (SS)		103	% Rec.

SS - Surrogate Standard reported as percent recovery.
Bromochloromethane used as surrogate standard.

Comments:

Approved By:

CH2M HILL
Engineers
Planners
Economists
Scientists

METHOD: 601/8010 (Volatile Halocarbons)

Client: Bureau of Land Mgmt.
Client Sample ID: SW-1

Sample Matrix: Water
Dilution Factor: 1

Reference No: 25841-1

Date Sampled: 02-22-90
Date Received: 02-23-90
Date Analyzed: 03-01-90

Compounds	Detection Limit	Sample Result	Units
Chloromethane	1	< 1	ug/l
Bromomethane	1	< 1	ug/l
Dichlorodifluoromethane	1	< 1	ug/l
Vinyl chloride	1	< 1	ug/l
Chloroethane	1	< 1	ug/l
Methylene chloride	1	< 1	ug/l
Trichlorofluoromethane	1	< 1	ug/l
1,1-Dichloroethene	1	< 1	ug/l
1,1-Dichloroethane	1	< 1	ug/l
trans-1,2-Dichloroethene	1	< 1	ug/l
Chloroform	1	< 1	ug/l
1,2-Dichloroethane	1	< 1	ug/l
1,1,1-Trichloroethane	1	< 1	ug/l
Carbon tetrachloride	1	< 1	ug/l
Bromodichloromethane	1	< 1	ug/l
1,2-Dichloropropane	1	< 1	ug/l
cis-1,3-Dichloropropene	1	< 1	ug/l
Trichloroethene	1	< 1	ug/l
Dibromochloromethane	1	< 1	ug/l
1,1,2-Trichloroethane	1	< 1	ug/l
trans-1,3-Dichloropropene	1	< 1	ug/l
Bromoform	1	< 1	ug/l
1,1,2,2-Tetrachloroethane	1	< 1	ug/l
Tetrachloroethene	1	< 1	ug/l
Chlorobenzene	1	< 1	ug/l
1,3-Dichlorobenzene	1	< 1	ug/l
1,2-Dichlorobenzene	1	< 1	ug/l
1,4-Dichlorobenzene	1	< 1	ug/l
Surrogate (SS)		114	% Rec.

SS - Surrogate Standard reported as percent recovery.
Bromochloromethane used as surrogate standard.

Comments:

Approved By: Greg Jordan

CH2M HILL
Engineers
Planners
Economists
Scientists

METHOD: EPA 602/8020 (Volatile Aromatics)

Client: Bureau of Land Mgmt.
Client Sample ID: SW-1

Sample Matrix: Water
Dilution Factor: 1

Reference No: 25841-1

Date Sampled: 02-22-90
Date Received: 02-23-90
Date Analyzed: 03-01-90

Compounds	Detection Limit	Sample Result	Units
tert-butyl methyl ether	1	< 1	ug/l
Benzene	1	< 1	ug/l
Toluene	1	1	ug/l
Chlorobenzene	1	< 1	ug/l
Ethyl benzene	1	< 1	ug/l
Total Xylenes	1	1	ug/l
1,3-Dichlorobenzene	1	< 1	ug/l
1,2-Dichlorobenzene	1	< 1	ug/l
1,4-Dichlorobenzene	1	< 1	ug/l
Surrogate (SS)		97	% Rec.

SS - Surrogate Standard reported as percent recovery.
Trifluorotoluene used as surrogate standard.

Comments:

Approved By: Greg Jordan

METHOD: 601/8010 (Volatile Halocarbons)

Client: Bureau of Land Mgmt.
Client Sample ID: SW-2

Sample Matrix: Water
Dilution Factor: 1

Reference No: 25841-2

Date Sampled: 02-23-90
Date Received: 02-23-90
Date Analyzed: 03-02-90

Compounds	Detection Limit	Sample Result	Units
Chloromethane	1	< 1	ug/l
Bromomethane	1	< 1	ug/l
Dichlorodifluoromethane	1	< 1	ug/l
Vinyl chloride	1	< 1	ug/l
Chloroethane	1	< 1	ug/l
Methylene chloride	1	1	ug/l
Trichlorofluoromethane	1	< 1	ug/l
1,1-Dichloroethene	1	< 1	ug/l
1,1-Dichloroethane	1	< 1	ug/l
trans-1,2-Dichloroethene	1	< 1	ug/l
Chloroform	1	< 1	ug/l
1,2-Dichloroethane	1	< 1	ug/l
1,1,1-Trichloroethane	1	< 1	ug/l
Carbon tetrachloride	1	< 1	ug/l
Bromodichloromethane	1	< 1	ug/l
1,2-Dichloropropane	1	< 1	ug/l
cis-1,3-Dichloropropene	1	< 1	ug/l
Trichloroethene	1	< 1	ug/l
Dibromochloromethane	1	< 1	ug/l
1,1,2-Trichloroethane	1	< 1	ug/l
trans-1,3-Dichloropropene	1	< 1	ug/l
Bromoform	1	< 1	ug/l
1,1,2,2-Tetrachloroethane	1	< 1	ug/l
Tetrachloroethene	1	< 1	ug/l
Chlorobenzene	1	< 1	ug/l
1,3-Dichlorobenzene	1	< 1	ug/l
1,2-Dichlorobenzene	1	< 1	ug/l
1,4-Dichlorobenzene	1	< 1	ug/l
Surrogate (SS)		111	% Rec.

SS - Surrogate Standard reported as percent recovery.
Bromochloromethane used as surrogate standard.

Comments:

Approved By: Greg Jordan

METHOD: EPA 602/8020 (Volatile Aromatics)

Client:	Bureau of Land Mgmt.	Reference No:	25841-2
Client Sample ID:	SW-2		
		Date Sampled:	02-23-90
Sample Matrix:	Water	Date Received:	02-23-90
Dilution Factor:	1	Date Analyzed:	03-02-90

Compounds	Detection Limit	Sample Result	Units
tert-butyl methyl ether	1	< 1	ug/l
Benzene	1	< 1	ug/l
Toluene	1	< 1	ug/l
Chlorobenzene	1	< 1	ug/l
Ethyl benzene	1	< 1	ug/l
Total Xylenes	1	1	ug/l
1,3-Dichlorobenzene	1	< 1	ug/l
1,2-Dichlorobenzene	1	< 1	ug/l
1,4-Dichlorobenzene	1	< 1	ug/l
Surrogate (SS)		95	% Rec.

SS - Surrogate Standard reported as percent recovery.
Trifluorotoluene used as surrogate standard.

Comments:

Approved By: ______________________

METHOD: 601/8010 (Volatile Halocarbons)

Client: Bureau of Land Mgmt.
Client Sample ID: SW-3

Sample Matrix: Water
Dilution Factor: 1

Reference No: 25841-3

Date Sampled: 02-23-90
Date Received: 02-23-90
Date Analyzed: 03-08-90

Compounds	Detection Limit	Sample Result	Units
Chloromethane	1	< 1	ug/l
Bromomethane	1	< 1	ug/l
Dichlorodifluoromethane	1	< 1	ug/l
Vinyl chloride	1	< 1	ug/l
Chloroethane	1	< 1	ug/l
Methylene chloride	1	7	ug/l
Trichlorofluoromethane	1	< 1	ug/l
1,1-Dichloroethene	1	< 1	ug/l
1,1-Dichloroethane	1	< 1	ug/l
trans-1,2-Dichloroethene	1	< 1	ug/l
Chloroform	1	< 1	ug/l
1,2-Dichloroethane	1	< 1	ug/l
1,1,1-Trichloroethane	1	< 1	ug/l
Carbon tetrachloride	1	< 1	ug/l
Bromodichloromethane	1	< 1	ug/l
1,2-Dichloropropane	1	< 1	ug/l
cis-1,3-Dichloropropene	1	< 1	ug/l
Trichloroethene	1	< 1	ug/l
Dibromochloromethane	1	< 1	ug/l
1,1,2-Trichloroethane	1	< 1	ug/l
trans-1,3-Dichloropropene	1	< 1	ug/l
Bromoform	1	< 1	ug/l
1,1,2,2-Tetrachloroethane	1	< 1	ug/l
Tetrachloroethene	1	< 1	ug/l
Chlorobenzene	1	< 1	ug/l
1,3-Dichlorobenzene	1	< 1	ug/l
1,2-Dichlorobenzene	1	< 1	ug/l
1,4-Dichlorobenzene	1	< 1	ug/l
Surrogate (SS)		132	% Rec.

SS - Surrogate Standard reported as percent recovery.
Bromochloromethane used as surrogate standard.

Comments:

Approved By: Greg Jordan

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METHOD: EPA 602/8020 (Volatile Aromatics)

Client: Bureau of Land Mgmt.
Client Sample ID: SW-3

Sample Matrix: Water
Dilution Factor: 1

Reference No: 25841-3

Date Sampled: 02-23-90
Date Received: 02-23-90
Date Analyzed: 03-02-90

Compounds	Detection Limit	Sample Result	Units
tert-butyl methyl ether	1	< 1	ug/l
Benzene	1	< 1	ug/l
Toluene	1	< 1	ug/l
Chlorobenzene	1	< 1	ug/l
Ethyl benzene	1	< 1	ug/l
Total Xylenes	1	< 1	ug/l
1,3-Dichlorobenzene	1	< 1	ug/l
1,2-Dichlorobenzene	1	< 1	ug/l
1,4-Dichlorobenzene	1	< 1	ug/l
Surrogate (SS)		97	% Rec.

SS - Surrogate Standard reported as percent recovery.
Trifluorotoluene used as surrogate standard.

Comments:

Approved By: Greg Jordan

METHOD: 601/8010 (Volatile Halocarbons)

Client: Bureau of Land Mgmt.
Client Sample ID: SW-4

Reference No: 25841-4

Sample Matrix: Water
Dilution Factor: 1

Date Sampled: 02-23-90
Date Received: 02-23-90
Date Analyzed: 03-06-90

Compounds	Detection Limit	Sample Result	Units
Chloromethane	1	< 1	ug/l
Bromomethane	1	< 1	ug/l
Dichlorodifluoromethane	1	< 1	ug/l
Vinyl chloride	1	< 1	ug/l
Chloroethane	1	< 1	ug/l
Methylene chloride	1	6	ug/l
Trichlorofluoromethane	1	< 1	ug/l
1,1-Dichloroethene	1	< 1	ug/l
1,1-Dichloroethane	1	< 1	ug/l
trans-1,2-Dichloroethene	1	< 1	ug/l
Chloroform	1	< 1	ug/l
1,2-Dichloroethane	1	< 1	ug/l
1,1,1-Trichloroethane	1	< 1	ug/l
Carbon tetrachloride	1	< 1	ug/l
Bromodichloromethane	1	< 1	ug/l
1,2-Dichloropropane	1	< 1	ug/l
cis-1,3-Dichloropropene	1	< 1	ug/l
Trichloroethene	1	< 1	ug/l
Dibromochloromethane	1	< 1	ug/l
1,1,2-Trichloroethane	1	< 1	ug/l
trans-1,3-Dichloropropene	1	< 1	ug/l
Bromoform	1	< 1	ug/l
1,1,2,2-Tetrachloroethane	1	< 1	ug/l
Tetrachloroethene	1	< 1	ug/l
Chlorobenzene	1	< 1	ug/l
1,3-Dichlorobenzene	1	< 1	ug/l
1,2-Dichlorobenzene	1	< 1	ug/l
1,4-Dichlorobenzene	1	< 1	ug/l
Surrogate (SS)		117	% Rec.

SS - Surrogate Standard reported as percent recovery.
Bromochloromethane used as surrogate standard.

Comments:

Approved By: Greg Jordan

METHOD: EPA 602/8020 (Volatile Aromatics)

Client: Bureau of Land Mgmt.
Client Sample ID: SW-4

Sample Matrix: Water
Dilution Factor: 1

Reference No: 25841-4

Date Sampled: 02-23-90
Date Received: 02-23-90
Date Analyzed: 03-06-90

Compounds	Detection Limit	Sample Result	Units
tert-butyl methyl ether	1	< 1	ug/l
Benzene	1	< 1	ug/l
Toluene	1	< 1	ug/l
Chlorobenzene	1	< 1	ug/l
Ethyl benzene	1	< 1	ug/l
Total Xylenes	1	< 1	ug/l
1,3-Dichlorobenzene	1	< 1	ug/l
1,2-Dichlorobenzene	1	< 1	ug/l
1,4-Dichlorobenzene	1	< 1	ug/l
Surrogate (SS)		98	% Rec.

SS - Surrogate Standard reported as percent recovery.
Trifluorotoluene used as surrogate standard.

Comments:

Approved By: Greg Jordan

METHOD: 601/8010 (Volatile Halocarbons)

Client: Bureau of Land Mgmt.
Client Sample ID: SW-5

Sample Matrix: Water
Dilution Factor: 1

Reference No: 25841-5

Date Sampled: 02-23-90
Date Received: 02-23-90
Date Analyzed: 03-02-90

Compounds	Detection Limit	Sample Result	Units
Chloromethane	1	< 1	ug/l
Bromomethane	1	< 1	ug/l
Dichlorodifluoromethane	1	< 1	ug/l
Vinyl chloride	1	< 1	ug/l
Chloroethane	1	< 1	ug/l
Methylene chloride	1	< 1	ug/l
Trichlorofluoromethane	1	< 1	ug/l
1,1-Dichloroethene	1	< 1	ug/l
1,1-Dichloroethane	1	< 1	ug/l
trans-1,2-Dichloroethene	1	< 1	ug/l
Chloroform	1	< 1	ug/l
1,2-Dichloroethane	1	< 1	ug/l
1,1,1-Trichloroethane	1	< 1	ug/l
Carbon tetrachloride	1	< 1	ug/l
Bromodichloromethane	1	< 1	ug/l
1,2-Dichloropropane	1	< 1	ug/l
cis-1,3-Dichloropropene	1	< 1	ug/l
Trichloroethene	1	< 1	ug/l
Dibromochloromethane	1	< 1	ug/l
1,1,2-Trichloroethane	1	< 1	ug/l
trans-1,3-Dichloropropene	1	< 1	ug/l
Bromoform	1	< 1	ug/l
1,1,2,2-Tetrachloroethane	1	< 1	ug/l
Tetrachloroethene	1	< 1	ug/l
Chlorobenzene	1	< 1	ug/l
1,3-Dichlorobenzene	1	< 1	ug/l
1,2-Dichlorobenzene	1	< 1	ug/l
1,4-Dichlorobenzene	1	< 1	ug/l
Surrogate (SS)		118	% Rec.

SS - Surrogate Standard reported as percent recovery.
Bromochloromethane used as surrogate standard.

Comments:

Approved By: ____________________

METHOD: EPA 602/8020 (Volatile Aromatics)

Client: Bureau of Land Mgmt.
Client Sample ID: SW-5

Sample Matrix: Water
Dilution Factor: 1

Reference No: 25841-5

Date Sampled: 02-23-90
Date Received: 02-23-90
Date Analyzed: 03-02-90

Compounds	Detection Limit	Sample Result	Units
tert-butyl methyl ether	1	< 1	ug/l
Benzene	1	< 1	ug/l
Toluene	1	< 1	ug/l
Chlorobenzene	1	< 1	ug/l
Ethyl benzene	1	< 1	ug/l
Total Xylenes	1	< 1	ug/l
1,3-Dichlorobenzene	1	< 1	ug/l
1,2-Dichlorobenzene	1	< 1	ug/l
1,4-Dichlorobenzene	1	< 1	ug/l
Surrogate (SS)		95	% Rec.

SS - Surrogate Standard reported as percent recovery.
Trifluorotoluene used as surrogate standard.

Comments:

Approved By: Greg Jordan

CASE NARRATIVE FOR SEMIVOLATILE MASS SPECTROMETRY SAMPLES

LABORATORY: **CH2M HILL**

CLIENT: BUREAU LAND MANAGEMENT

CASE NO : N/A

CONTRACT NO.: N/A

LAB ID : 25841

SDG # : N/A

I. RECEIPT

A. Date: 02/23/90

B.

LAB ID	CLIENT ID	SAMPLE MATRIX	DATE SAMPLED	EXTRACTION DATE	ANALYSIS DATE
25841001	SW-1	WATER	02/22/90	03/01/90	03/12/90
25841002	SW-2	WATER	02/23/90	03/01/90	03/13/90
25841003	SW-3	WATER	02/23/90	03/01/90	03/13/90
25841004	SW-4	WATER	02/23/90	03/01/90	03/13/90
25841005	SW-5	WATER	02/23/90	03/01/90	03/13/90
BLANK	SBLKW1	WATER	N/A	03/01/90	03/12/90

C. Documentation Exceptions : None encountered.

II. EXTRACTION

A. Holding Times : All met

B. Extraction Exceptions : Sample extractions proceeded as normal. No exceptions were encountered.

III. ANALYSIS

A. Holding Times: All met

B. Analytical Exceptions : Siloxane compounds are routinely seen as tentatively identified non-TCL compounds (TICs) and are reported on Form 1-F for samples. Siloxanes, as well as N-Nitrosodiphenylamine, are common products used in GC septum and silinizing reagents for injector liners.

No exceptions were encountered.

IV. QUALITY CONTROL

A. Method Blank : A method blank is a laboratory generated sample used to determine the degree to which laboratory operations may cause false positive results for these samples. No target parameters were detected in the method blank(s) associated with these samples.

B. Surrogate Recoveries : All samples met acceptable QC limits.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature. Diskette deliverables have not been provided for this data package.

Rick Schrynemaecker 3/15/90

Rick Schrynemeeckers Date
GC/MS Section Supervisor/
Technology Director

EPA - DEFINED QUALIFIERS (ORGANICS)

Definitions for the EPA-defined qualifiers:

U -- Indicates the compound was analyzed for but not detected. The number adjacent to the "U" qualifier indicates the practical quantitation limit (PQL) for that compound. The PQL can vary from sample to sample depending on dilution factors or percent moisture adjustment when indicated.

J -- Indicates an estimated value. This flag is used when the mass spectral data indicates the presence of a compound below the stated PQL. The "J" qualifier is not used with pesticide results.

C -- This flag applies to pesticide results only. The "C" flag indicates the presence of this compound has been confirmed by GC/MS analysis.

B -- This flag is used when the analyte is found in the associated blank as well as the sample. This notation indicates possible blank contamination and suggests the data user evaluate these compounds and their amounts carefully.

E -- This flag applies to GC/MS only. The "E" qualifier indicates a compound may be above or below the linear range of the instrument. If the particular compound level is deemed above the linear calibration range, then the sample should be reanalyzed at an appropriate dilution. Therefore, the "E" qualified amount is an estimated concentration. The results of the dilution will be reported on a separate Form I and will be flagged with a "D" if the dilution brings the concentration within proper calibration.

D -- This flag identifies compounds which have been run at a dilution to bring the concentration of that compound within the linear range of the instrument. "D" qualifiers are only used for samples that have been run initially with results above acceptable ranges. For secondary dilutions the "DL" suffix is appended to the sample number on the Form I.

A -- Indicates the Tentatively Identified Compound (TIC) is a suspected aldol-condensation product.

X -- Indicates the compound concentration has been manually modified or the EPA qualifier has been manually modified or added.

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ORGANICS ANALYSIS DATA SHEET

Laboratory Name:	CH2M HILL/LRD	Concentration:	LOW	Date Extracted:	03/01/90
Lab Sample ID:	25841001	Sample Matrix:	WATER	Date Analyzed:	03/12/90
Client Sample ID:	SW-1	Percent Moisture:		Dilution Factor:	1.0

SEMIVOLATILE COMPOUNDS

CAS Number		ug/L	
62-75-9	N-Nitrosodimethylamine . .	10	U
108-95-2	Phenol	10	U
62-53-3	Aniline	10	U
111-44-4	bis(2-Chloroethyl)Ether .	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene . . .	10	U
106-46-7	1,4-Dichlorobenzene . . .	10	U
100-51-6	Benzyl Alcohol	10	U
95-50-1	1,2-Dichlorobenzene . . .	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	bis(2-Chloroisopropyl)Ether	10	U
106-44-5	4-Methylphenol	9	J
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic Acid	50	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
1[illegible]32-1	1,2,4-Trichlorobenzene . .	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene . . .	10	U
59-50-7	4-Chloro-3-methylphenol .	10	U
91-57-6	2-Methylnaphthalene . . .	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol . .	10	U
95-95-4	2,4,5-Trichlorophenol . .	10	U
91-58-7	2-Chloronaphthalene . . .	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethyl Phthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	10	U

CAS Number		ug/L	
100-02-7	4-Nitrophenol	10	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-methylphenol	10	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
122-66-7	1,2-Diphenylhydrazine . .	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-Butylphthalate . . .	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate . . .	10	U
91-94-1	3,3′-Dichlorobenzidine . .	20	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	10	U
117-84-0	Di-n-octylphthalate . . .	10	U
205-99-2	Benzo(b)fluoranthene . . .	10	U
207-08-9	Benzo(k)fluoranthene . . .	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene . .	10	U
53-70-3	Dibenz(a,h)Anthracene . .	10	U
191-24-2	Benzo(g,h,i)perylene . . .	10	U

Nitrobenzene-d5 - SS . . .	73
2-Fluorobiphenyl - SS . .	81
Terphenyl-d14 - SS	86
Phenol-d5 - SS	52
2-Fluorophenol - SS . . .	37
2,4,6-Tribromophenol - SS	46

(1) - Cannot be separated from diphenylamine.
U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form I

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SW-1

I Name: CH2M HILL/LRD Contract: S25841

Lab Code: ______ Case No.: S25841 SAS No.: ______ SDG No.: GC-MS

Matrix: (soil/water) WATER Lab Sample ID: 25841001

Sample wt/vol: _____ (g/mL) ML Lab File ID: 90M1BN1785

Level: (low/med) LOW Date Received: 02/23/90

% Moisture: not dec. ____ dec. ____ Date Extracted: 03/01/90

Extraction: (SepF/Cont/Sonc) CONT Date Analyzed: 03/12/90

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1

Number TICs found: 10

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	5.97	9.3	J
2.	UNKNOWN	6.10	13	J
3.	UNKNOWN	6.57	11	J
4.	UNKNOWN	6.70	70	J
5.	UNKNOWN	7.33	60	J
6.	UNKNOWN	7.57	19	J
7.	UNKNOWN	7.70	15	J
8.	UNKNOWN	7.90	11	J
9.	UNKNOWN	9.62	13	J
10. 103-82-2	BENZENEACETIC ACID	14.75	23	J

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/LRD
Lab Sample ID: 25841002
Client Sample ID: SW-2

Concentration: LOW
Sample Matrix: WATER
Percent Moisture:

Date Extracted: 03/01/90
Date Analyzed: 03/13/90
Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

CAS Number		ug/L	
62-75-9	N-Nitrosodimethylamine . .	10	U
108-95-2	Phenol	10	U
62-53-3	Aniline	10	U
111-44-4	bis(2-Chloroethyl)Ether .	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene . . .	10	U
106-46-7	1,4-Dichlorobenzene . . .	10	U
100-51-6	Benzyl Alcohol	10	U
95-50-1	1,2-Dichlorobenzene . . .	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	bis(2-Chloroisopropyl)Ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic Acid	50	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
1 32-1	1,2,4-Trichlorobenzene . .	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene . . .	10	U
59-50-7	4-Chloro-3-methylphenol .	10	U
91-57-6	2-Methylnaphthalene . . .	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol . .	10	U
95-95-4	2,4,5-Trichlorophenol . .	10	U
91-58-7	2-Chloronaphthalene . . .	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethyl Phthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	10	U

CAS Number		ug/L	
100-02-7	4-Nitrophenol	10	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-methylphenol	10	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
122-66-7	1,2-Diphenylhydrazine . .	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-Butylphthalate . . .	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate . . .	10	U
91-94-1	3,3'-Dichlorobenzidine . .	20	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	10	U
117-84-0	Di-n-octylphthalate . . .	10	U
205-99-2	Benzo(b)fluoranthene . . .	10	U
207-08-9	Benzo(k)fluoranthene . . .	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene . .	10	U
53-70-3	Dibenz(a,h)Anthracene . .	10	U
191-24-2	Benzo(g,h,i)perylene . . .	10	U

Nitrobenzene-d5 - SS . . .	73
2-Fluorobiphenyl - SS . .	75
Terphenyl-d14 - SS	51
Phenol-d5 - SS	74
2-Fluorophenol - SS . . .	59
2,4,6-Tribromophenol - SS	92

(1) - Cannot be separated from diphenylamine.
U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form I

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SW-2

I Name: CH2M HILL/LRD Contract: S25841

Lab Code: ______ Case No.: S25841 SAS No.: ______ SDG No.: GC-MS

Matrix: (soil/water) WATER Lab Sample ID: 25841002

Sample wt/vol: _____ (g/mL) ML Lab File ID: 90M1BN1786

Level: (low/med) LOW Date Received: 02/23/90

% Moisture: not dec. ____ dec. ____ Date Extracted: 03/01/90

Extraction: (SepF/Cont/Sonc) CONT Date Analyzed: 03/13/90

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1

Number TICs found: 2

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	6.72	150	J
2.	UNKNOWN	7.35	130	J

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ORGANICS ANALYSIS DATA SHEET

Laboratory Name:	CH2M HILL/LRD	Concentration:	LOW	Date Extracted:	03/01/90
Lab Sample ID:	25841003	Sample Matrix:	WATER	Date Analyzed:	03/13/90
Client Sample ID:	SW-3	Percent Moisture:		Dilution Factor:	1.0

SEMIVOLATILE COMPOUNDS

CAS Number		ug/L	
62-75-9	N-Nitrosodimethylamine . .	10	U
108-95-2	Phenol	10	U
62-53-3	Aniline	10	U
111-44-4	bis(2-Chloroethyl)Ether .	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene . . .	10	U
106-46-7	1,4-Dichlorobenzene . . .	10	U
100-51-6	Benzyl Alcohol	10	U
95-50-1	1,2-Dichlorobenzene . . .	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	bis(2-Chloroisopropyl)Ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic Acid	50	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
1[illegible]32-1	1,2,4-Trichlorobenzene . .	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene . . .	10	U
59-50-7	4-Chloro-3-methylphenol .	10	U
91-57-6	2-Methylnaphthalene . . .	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol . .	10	U
95-95-4	2,4,5-Trichlorophenol . .	10	U
91-58-7	2-Chloronaphthalene . . .	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethyl Phthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	10	U

CAS Number		ug/L	
100-02-7	4-Nitrophenol	10	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-methylphenol	10	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
122-66-7	1,2-Diphenylhydrazine . .	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-Butylphthalate . . .	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate . . .	10	U
91-94-1	3,3'-Dichlorobenzidine . .	20	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	10	U
117-84-0	Di-n-octylphthalate . . .	10	U
205-99-2	Benzo(b)fluoranthene . . .	10	U
207-08-9	Benzo(k)fluoranthene . . .	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene . .	10	U
53-70-3	Dibenz(a,h)Anthracene . .	10	U
191-24-2	Benzo(g,h,i)perylene . . .	10	U
	Nitrobenzene-d5 - SS . . .	73	
	2-Fluorobiphenyl - SS . .	78	
	Terphenyl-d14 - SS	67	
	Phenol-d5 - SS	61	
	2-Fluorophenol - SS . . .	42	
	2,4,6-Tribromophenol - SS	92	

(1) - Cannot be separated from diphenylamine.
U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form I

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SW-3

I Name: CH2M HILL/LRD Contract: S25841

Lab Code: ______ Case No.: S25841 SAS No.: ______ SDG No.: GC-MS

Matrix: (soil/water) WATER Lab Sample ID: 25841003

Sample wt/vol: _____ (g/mL) ML Lab File ID: 90M1BN1787

Level: (low/med) LOW Date Received: 02/23/90

% Moisture: not dec. ____ dec. ____ Date Extracted: 03/01/90

Extraction: (SepF/Cont/Sonc) CONT Date Analyzed: 03/13/90

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1

Number TICs found: 2

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	6.70	40	J
2.	UNKNOWN	7.33	36	J

CH2M HILL
Engineers
Planners
Economists
Scientists

ORGANICS ANALYSIS DATA SHEET

L ratory Name:	CH2M HILL/LRD	Concentration:	LOW	Date Extracted:	03/01/90
Lab Sample ID:	25841004	Sample Matrix:	WATER	Date Analyzed:	03/13/90
Client Sample ID:	SW-4	Percent Moisture:		Dilution Factor:	1.0

SEMIVOLATILE COMPOUNDS

CAS Number		ug/L	
62-75-9	N-Nitrosodimethylamine . .	10	U
108-95-2	Phenol	10	U
62-53-3	Aniline	10	U
111-44-4	bis(2-Chloroethyl)Ether .	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene . . .	10	U
106-46-7	1,4-Dichlorobenzene . . .	10	U
100-51-6	Benzyl Alcohol	10	U
95-50-1	1,2-Dichlorobenzene . . .	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	bis(2-Chloroisopropyl)Ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic Acid	50	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
1 32-1	1,2,4-Trichlorobenzene . .	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene . . .	10	U
59-50-7	4-Chloro-3-methylphenol .	10	U
91-57-6	2-Methylnaphthalene . . .	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol . .	10	U
95-95-4	2,4,5-Trichlorophenol . .	10	U
91-58-7	2-Chloronaphthalene . . .	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethyl Phthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	10	U

CAS Number		ug/L	
100-02-7	4-Nitrophenol	10	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-methylphenol	10	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
122-66-7	1,2-Diphenylhydrazine . .	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-Butylphthalate . . .	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate . . .	10	U
91-94-1	3,3'-Dichlorobenzidine . .	20	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	10	U
117-84-0	Di-n-octylphthalate . . .	10	U
205-99-2	Benzo(b)fluoranthene . . .	10	U
207-08-9	Benzo(k)fluoranthene . . .	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene . .	10	U
53-70-3	Dibenz(a,h)Anthracene . .	10	U
191-24-2	Benzo(g,h,i)perylene . . .	10	U
	Nitrobenzene-d5 - SS . . .	74	
	2-Fluorobiphenyl - SS . .	83	
	Terphenyl-d14 - SS	70	
	Phenol-d5 - SS	70	
	2-Fluorophenol - SS . . .	50	
	2,4,6-Tribromophenol - SS	100	

(1) - Cannot be separated from diphenylamine.
U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form I

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SW-4

I Name: CH2M HILL/LRD Contract: S25841

Lab Code: ______ Case No.: S25841 SAS No.: ______ SDG No.: GC-MS

Matrix: (soil/water) WATER Lab Sample ID: 25841004

Sample wt/vol: _____ (g/mL) ML Lab File ID: 90M1BN1788

Level: (low/med) LOW Date Received: 02/23/90

% Moisture: not dec. ____ dec. ____ Date Extracted: 03/01/90

Extraction: (SepF/Cont/Sonc) CONT Date Analyzed: 03/13/90

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1

Number TICs found: 5

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	6.70	110	J
2.	UNKNOWN	7.35	95	J
3.	UNKNOWN	7.57	8.2	J
4.	UNKNOWN	23.59	9.3	J
5.	UNKNOWN	23.75	8.3	J

FORM I SV-TIC

1/87 Rev.

ORGANICS ANALYSIS DATA SHEET

L ratory Name: CH2M HILL/LRD
Lab Sample ID: 25841005
Client Sample ID: SW-5

Concentration: LOW
Sample Matrix: WATER
Percent Moisture:

Date Extracted: 03/01/90
Date Analyzed: 03/13/90
Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

CAS Number		ug/L		CAS Number		ug/L	
62-75-9	N-Nitrosodimethylamine . .	10	U	100-02-7	4-Nitrophenol	10	U
108-95-2	Phenol	10	U	132-64-9	Dibenzofuran	10	U
62-53-3	Aniline	10	U	121-14-2	2,4-Dinitrotoluene	10	U
111-44-4	bis(2-Chloroethyl)Ether .	10	U	84-66-2	Diethylphthalate	10	U
95-57-8	2-Chlorophenol	10	U	7005-72-3	4-Chlorophenyl-phenylether	10	U
541-73-1	1,3-Dichlorobenzene . . .	10	U	86-73-7	Fluorene	10	U
106-46-7	1,4-Dichlorobenzene . . .	10	U	100-01-6	4-Nitroaniline	50	U
100-51-6	Benzyl Alcohol	10	U	534-52-1	4,6-Dinitro-2-methylphenol	10	U
95-50-1	1,2-Dichlorobenzene . . .	10	U	86-30-6	N-Nitrosodiphenylamine (1)	10	U
95-48-7	2-Methylphenol	10	U	122-66-7	1,2-Diphenylhydrazine . .	10	U
108-60-1	bis(2-Chloroisopropyl)Ether	10	U	101-55-3	4-Bromophenyl-phenylether	10	U
106-44-5	4-Methylphenol	10	U	118-74-1	Hexachlorobenzene	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U	87-86-5	Pentachlorophenol	50	U
67-72-1	Hexachloroethane	10	U	85-01-8	Phenanthrene	10	U
98-95-3	Nitrobenzene	10	U	120-12-7	Anthracene	10	U
78-59-1	Isophorone	10	U	84-74-2	Di-n-Butylphthalate . . .	10	U
88-75-5	2-Nitrophenol	10	U	206-44-0	Fluoranthene	10	U
105-67-9	2,4-Dimethylphenol	10	U	129-00-0	Pyrene	10	U
65-85-0	Benzoic Acid	50	U	85-68-7	Butylbenzylphthalate . . .	10	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U	91-94-1	3,3′-Dichlorobenzidine . .	20	U
120-83-2	2,4-Dichlorophenol	10	U	56-55-3	Benzo(a)anthracene	10	U
1 32-1	1,2,4-Trichlorobenzene . .	10	U	218-01-9	Chrysene	10	U
91-20-3	Naphthalene	10	U	117-81-7	bis(2-Ethylhexyl)Phthalate	10	U
106-47-8	4-Chloroaniline	10	U	117-84-0	Di-n-octylphthalate . . .	10	U
87-68-3	Hexachlorobutadiene . . .	10	U	205-99-2	Benzo(b)fluoranthene . . .	10	U
59-50-7	4-Chloro-3-methylphenol .	10	U	207-08-9	Benzo(k)fluoranthene . . .	10	U
91-57-6	2-Methylnaphthalene . . .	10	U	50-32-8	Benzo(a)pyrene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U	193-39-5	Indeno(1,2,3-cd)Pyrene . .	10	U
88-06-2	2,4,6-Trichlorophenol . .	10	U	53-70-3	Dibenz(a,h)Anthracene . .	10	U
95-95-4	2,4,5-Trichlorophenol . .	10	U	191-24-2	Benzo(g,h,i)perylene . . .	10	U
91-58-7	2-Chloronaphthalene . . .	10	U		---------------------------		
88-74-4	2-Nitroaniline	50	U		Nitrobenzene-d5 - SS . . .	71	
131-11-3	Dimethyl Phthalate	10	U		2-Fluorobiphenyl - SS . .	77	
208-96-8	Acenaphthylene	10	U		Terphenyl-d14 - SS	110	
606-20-2	2,6-Dinitrotoluene	10	U		Phenol-d5 - SS	58	
99-09-2	3-Nitroaniline	50	U		2-Fluorophenol - SS . . .	41	
83-32-9	Acenaphthene	10	U		2,4,6-Tribromophenol - SS	98	
51-28-5	2,4-Dinitrophenol	10	U				

(1) - Cannot be separated from diphenylamine.
U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form I

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SW-5

I Name: CH2M HILL/LRD Contract: S25841

Lab Code: ______ Case No.: S25841 SAS No.: ______ SDG No.: GC-MS

Matrix: (soil/water) WATER Lab Sample ID: 25841005

Sample wt/vol: ______ (g/mL) ML Lab File ID: 90M1BN1789

Level: (low/med) LOW Date Received: 02/23/90

% Moisture: not dec. ____ dec. ____ Date Extracted: 03/01/90

Extraction: (SepF/Cont/Sonc) CONT Date Analyzed: 03/13/90

GPC Cleanup: (Y/N) N pH: ______ Dilution Factor: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 4

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	6.08	8.6	J
2.	UNKNOWN	6.68	26	J
3.	UNKNOWN	7.33	22	J
4.	UNKNOWN	7.55	14	J

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/LRD
Lab Sample ID: METHOD-BLANK
Client Sample ID: SBLKWI

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: ______

Date Extracted: 03/01/90
Date Analyzed: 03/12/90
Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

CAS Number		ug/L		CAS Number		ug/L	
62-75-9	N-Nitrosodimethylamine . .	10	U	100-02-7	4-Nitrophenol	10	U
108-95-2	Phenol	10	U	132-64-9	Dibenzofuran	10	U
62-53-3	Aniline	10	U	121-14-2	2,4-Dinitrotoluene	10	U
111-44-4	bis(2-Chloroethyl)Ether .	10	U	84-66-2	Diethylphthalate	10	U
95-57-8	2-Chlorophenol	10	U	7005-72-3	4-Chlorophenyl-phenylether	10	U
541-73-1	1,3-Dichlorobenzene . . .	10	U	86-73-7	Fluorene	10	U
106-46-7	1,4-Dichlorobenzene . . .	10	U	100-01-6	4-Nitroaniline	50	U
100-51-6	Benzyl Alcohol	10	U	534-52-1	4,6-Dinitro-2-methylphenol	10	U
95-50-1	1,2-Dichlorobenzene . . .	10	U	86-30-6	N-Nitrosodiphenylamine (1)	10	U
95-48-7	2-Methylphenol	10	U	122-66-7	1,2-Diphenylhydrazine . .	10	U
108-60-1	bis(2-Chloroisopropyl)Ether	10	U	101-55-3	4-Bromophenyl-phenylether	10	U
106-44-5	4-Methylphenol	10	U	118-74-1	Hexachlorobenzene	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U	87-86-5	Pentachlorophenol	50	U
67-72-1	Hexachloroethane	10	U	85-01-8	Phenanthrene	10	U
98-95-3	Nitrobenzene	10	U	120-12-7	Anthracene	10	U
78-59-1	Isophorone	10	U	84-74-2	Di-n-Butylphthalate . . .	10	U
88-75-5	2-Nitrophenol	10	U	206-44-0	Fluoranthene	10	U
105-67-9	2,4-Dimethylphenol	10	U	129-00-0	Pyrene	10	U
65-85-0	Benzoic Acid	50	U	85-68-7	Butylbenzylphthalate . . .	10	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U	91-94-1	3,3′-Dichlorobenzidine . .	20	U
1 83-2	2,4-Dichlorophenol	10	U	56-55-3	Benzo(a)anthracene	10	U
12 -82-1	1,2,4-Trichlorobenzene . .	10	U	218-01-9	Chrysene	10	U
91-20-3	Naphthalene	10	U	117-81-7	bis(2-Ethylhexyl)Phthalate	10	U
106-47-8	4-Chloroaniline	10	U	117-84-0	Di-n-octylphthalate . . .	10	U
87-68-3	Hexachlorobutadiene . . .	10	U	205-99-2	Benzo(b)fluoranthene . . .	10	U
59-50-7	4-Chloro-3-methylphenol .	10	U	207-08-9	Benzo(k)fluoranthene . . .	10	U
91-57-6	2-Methylnaphthalene . . .	10	U	50-32-8	Benzo(a)pyrene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U	193-39-5	Indeno(1,2,3-cd)Pyrene . .	10	U
88-06-2	2,4,6-Trichlorophenol . .	10	U	53-70-3	Dibenz(a,h)Anthracene . .	10	U
95-95-4	2,4,5-Trichlorophenol . .	10	U	191-24-2	Benzo(g,h,i)perylene . . .	10	U
91-58-7	2-Chloronaphthalene . . .	10	U		----------------------------		
88-74-4	2-Nitroaniline	50	U		Nitrobenzene-d5 - SS . . .	79	
131-11-3	Dimethyl Phthalate	10	U		2-Fluorobiphenyl - SS . .	85	
208-96-8	Acenaphthylene	10	U		Terphenyl-d14 - SS	140	
606-20-2	2,6-Dinitrotoluene	10	U		Phenol-d5 - SS	83	
99-09-2	3-Nitroaniline	50	U		2-Fluorophenol - SS . . .	67	
83-32-9	Acenaphthene	10	U		2,4,6-Tribromophenol - SS	110	
51-28-5	2,4-Dinitrophenol	10	U				

(1) - Cannot be separated from diphenylamine.
U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form I

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SBLKW1

I Name: CH2M HILL/LRD Contract: S25841

Lab Code: ______ Case No.: S25841 SAS No.: ______ SDG No.: GC-MS

Matrix: (soil/water) WATER Lab Sample ID: METHOD-BLANK

Sample wt/vol: _____ (g/mL) ML Lab File ID: 90M1BN1784

Level: (low/med) LOW Date Received: ________

% Moisture: not dec. ____ dec. ____ Date Extracted: 03/01/90

Extraction: (SepF/Cont/Sonc) CONT Date Analyzed: 03/12/90

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	7.57	11	J

Anlab
ANALYTICAL LABORATORY
A DIVISION OF DEWANTE & STOWELL
1910 S STREET. SACRAMENTO, CALIFORNIA 95814 • 916-447-2946

Chlorinated Pesticides and PCB's
Organic Priority Pollutants
EPA #608

Client: CH2M HILL
5090 CATERPILLAR ROAD
REDDING, CA 96003
ATTN: BARB HURLEY

Report Date: 03/15/90 Page: 7
Report #: 125847
Report for: U.S. BUREAU OF LAND MANAGEMENT
RDD28631.A0.30

Sample Description: 25841-1, Grab
SW-1

Anlab ID #: 125847-2 Units: ug/L

Date Sample Collected: 02/22/90
Time Sample Collected: NS
Date Received @ Lab: 02/27/90
Date Analysis Completed: 03/08/90

P.O. #: LRD 0125

STORET #	COMPOUND	CONCENTRATION	MDL
39330	Aldrin	ND	0.01
39337	alpha-BHC	ND	0.01
39338	beta-BHC	ND	0.05
34259	delta-BHC	ND	0.05
39340	gamma-BHC	ND	0.01
39350	Chlordane	ND	0.05
39310	4,4'-DDD	ND	0.02
39320	4,4'-DDE	ND	0.01
39300	4,4'-DDT	ND	0.02
39380	Dieldrin	ND	0.05
39361	Endosulfan I	ND	0.01
34356	Endosulfan II	ND	0.01
39351	Endosulfan sulfate	ND	0.05
39390	Endrin	ND	0.01
34366	Endrin aldehyde	ND	0.05
39410	Heptachlor	ND	0.02
39420	Heptachlor epoxide	ND	0.1
39400	Toxaphene	ND	0.5
34671	PCB 1016	ND	0.2
39488	PCB 1221	ND	0.2
39492	PCB 1232	ND	0.2
39496	PCB 1242	ND	0.2
39500	PCB 1248	ND	0.2
39504	PCB 1254	ND	0.2
39508	PCB 1260	ND	0.2

ND = Not Detected
NS = Not Specified

Data Certified By Kimberlie J Riley

Report Approved By Tom King

:slw

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A DIVISION OF DEWANTE & STOWELL

1910 S STREET, SACRAMENTO, CALIFORNIA 95814 • 916-447-2946

Chlorinated Pesticides and PCB's
Organic Priority Pollutants
EPA #608

Client: CH2M HILL
5090 CATERPILLAR ROAD
REDDING, CA 96003
ATTN: BARB HURLEY

Report Date: 03/15/90 Page: 8
Report #: 125847
Report for: U.S. BUREAU OF LAND MANAGEMENT
RDD28631.A0.30

Sample Description: 25841-2, Grab
SW-2

Anlab ID #: 125847-3 Units: ug/L

Date Sample Collected: 02/23/90
Time Sample Collected: NS
Date Received @ Lab: 02/27/90
Date Analysis Completed: 03/08/90

P.O. #: LRD 0125

STORET #	COMPOUND	CONCENTRATION	MDL
39330	Aldrin	ND	0.01
39337	alpha-BHC	ND	0.01
39338	beta-BHC	ND	0.05
34259	delta-BHC	ND	0.05
39340	gamma-BHC	ND	0.01
39350	Chlordane	ND	0.05
39310	4,4'-DDD	ND	0.02
39320	4,4'-DDE	ND	0.01
39300	4,4'-DDT	ND	0.02
39380	Dieldrin	ND	0.05
39361	Endosulfan I	ND	0.01
34356	Endosulfan II	ND	0.01
39351	Endosulfan sulfate	ND	0.05
39390	Endrin	ND	0.01
34366	Endrin aldehyde	ND	0.05
39410	Heptachlor	ND	0.02
39420	Heptachlor epoxide	ND	0.1
39400	Toxaphene	ND	0.5
34671	PCB 1016	ND	0.2
39488	PCB 1221	ND	0.2
39492	PCB 1232	ND	0.2
39496	PCB 1242	ND	0.2
39500	PCB 1248	ND	0.2
39504	PCB 1254	ND	0.2
39508	PCB 1260	5.3	0.2

ND = Not Detected
NS = Not Specified

Data Certified By ______

Report Approved By Tom King

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Chlorinated Pesticides and PCB's
Organic Priority Pollutants
EPA #608

Client: CH2M HILL
5090 CATERPILLAR ROAD
REDDING, CA 96003
ATTN: BARB HURLEY

Report Date: 03/15/90 Page: 9
Report #: 125847
Report for: U.S. BUREAU OF LAND MANAGEMENT
RDD28631.A0.30

Sample Description: 25841-3, Grab
SW-3

Anlab ID #: 125847-4 Units: ug/L

Date Sample Collected: 02/23/90
Time Sample Collected: NS
Date Received @ Lab: 02/27/90
Date Analysis Completed: 03/08/90

P.O. #: LRD 0125

STORET #	COMPOUND	CONCENTRATION	MDL
39330	Aldrin..................................	ND	0.01
39337	alpha-BHC...............................	ND	0.01
39338	beta-BHC................................	ND	0.05
34259	delta-BHC...............................	ND	0.05
39340	gamma-BHC...............................	ND	0.01
39350	Chlordane...............................	ND	0.05
39310	4,4'-DDD................................	ND	0.02
39320	4,4'-DDE................................	ND	0.01
39300	4,4'-DDT................................	ND	0.02
39380	Dieldrin................................	ND	0.05
39361	Endosulfan I............................	ND	0.01
34356	Endosulfan II...........................	ND	0.01
39351	Endosulfan sulfate......................	ND	0.05
39390	Endrin..................................	ND	0.01
34366	Endrin aldehyde.........................	ND	0.05
39410	Heptachlor..............................	ND	0.02
39420	Heptachlor epoxide......................	ND	0.1
39400	Toxaphene...............................	ND	0.5
34671	PCB 1016................................	ND	0.2
39488	PCB 1221................................	ND	0.2
39492	PCB 1232................................	ND	0.2
39496	PCB 1242................................	ND	0.2
39500	PCB 1248................................	ND	0.2
39504	PCB 1254................................	ND	0.2
39508	PCB 1260................................	4.3	0.2

ND = Not Detected
NS = Not Specified

Data Certified By ____________________

Report Approved By Tom King

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Chlorinated Pesticides and PCB's
Organic Priority Pollutants
EPA #608

Client: CH2M HILL
5090 CATERPILLAR ROAD
REDDING, CA 96003
ATTN: BARB HURLEY

Report Date: 03/15/90 **Page:** 10
Report #: 125847
Report for: U.S. BUREAU OF LAND MANAGEMENT
RDD28631.AO.30

Sample Description: 25841-4, Grab
SW-4

Anlab ID #: 125847-5 **Units:** ug/L

Date Sample Collected: 02/23/90
Time Sample Collected: NS
Date Received @ Lab: 02/27/90
Date Analysis Completed: 03/08/90

P.O. #: LRD 0125

STORET #	COMPOUND	CONCENTRATION	MDL
39330	Aldrin	ND	0.01
39337	alpha-BHC	ND	0.01
39338	beta-BHC	ND	0.05
34259	delta-BHC	ND	0.05
39340	gamma-BHC	ND	0.01
39350	Chlordane	ND	0.05
39310	4,4'-DDD	ND	0.02
39320	4,4'-DDE	ND	0.01
39300	4,4'-DDT	ND	0.02
39380	Dieldrin	ND	0.05
39361	Endosulfan I	ND	0.01
34356	Endosulfan II	ND	0.01
39351	Endosulfan sulfate	ND	0.05
39390	Endrin	ND	0.01
34366	Endrin aldehyde	ND	0.05
39410	Heptachlor	ND	0.02
39420	Heptachlor epoxide	ND	0.1
39400	Toxaphene	ND	0.5
34671	PCB 1016	ND	0.2
39488	PCB 1221	ND	0.2
39492	PCB 1232	ND	0.2
39496	PCB 1242	ND	0.2
39500	PCB 1248	ND	0.2
39504	PCB 1254	ND	0.2
39508	PCB 1260	6.8	0.2

ND = Not Detected
NS = Not Specified

Data Certified By ______________________

Report Approved By Tom King

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Chlorinated Pesticides and PCB's
Organic Priority Pollutants
EPA #608

Client: CH2M HILL
5090 CATERPILLAR ROAD
REDDING, CA 96003
ATTN: BARB HURLEY

Report Date: 03/15/90 **Page:** 11
Report #: 125847
Report for: U.S. BUREAU OF LAND MANAGEMENT
RDD28631.A0.30

Sample Description: 25841-5, Grab
SW-5

Anlab ID #: 125847-6 **Units:** ug/L

Date Sample Collected: 02/23/90
Time Sample Collected: NS
Date Received @ Lab: 02/27/90
Date Analysis Completed: 03/08/90

P.O. #: LRD 0125

STORET #	COMPOUND	CONCENTRATION	MDL
39330	Aldrin	ND	0.01
39337	alpha-BHC	ND	0.01
39338	beta-BHC	ND	0.05
34259	delta-BHC	ND	0.05
39340	gamma-BHC	ND	0.01
39350	Chlordane	ND	0.05
39310	4,4'-DDD	ND	0.02
39320	4,4'-DDE	ND	0.01
39300	4,4'-DDT	ND	0.02
39380	Dieldrin	ND	0.05
39361	Endosulfan I	ND	0.01
34356	Endosulfan II	ND	0.01
39351	Endosulfan sulfate	ND	0.05
39390	Endrin	ND	0.01
34366	Endrin aldehyde	ND	0.05
39410	Heptachlor	ND	0.02
39420	Heptachlor epoxide	ND	0.1
39400	Toxaphene	ND	0.5
34671	PCB 1016	ND	0.2
39488	PCB 1221	ND	0.2
39492	PCB 1232	ND	0.2
39496	PCB 1242	ND	0.2
39500	PCB 1248	ND	0.2
39504	PCB 1254	ND	0.2
39508	PCB 1260	4.4	0.2

ND = Not Detected
NS = Not Specified

Data Certified By ____________________

Report Approved By Tom King

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Chlorinated Pesticides and PCB's
Organic Priority Pollutants
EPA #608

Client: CH2M HILL
5090 CATERPILLAR ROAD
REDDING, CA 96003
ATTN: BARB HURLEY

Report Date: 03/15/90 Page: 12
Report #: 125847
Report for: U.S. BUREAU OF LAND MANAGEMENT
RDD28631.A0.30

Sample Description: METHOD BLANK Anlab ID #: 125847-MB Units: ug/L

Date Analysis Completed: 03/08/90

P.O. #: LRD 0125

STORET #	COMPOUND	CONCENTRATION	MDL
39330	Aldrin	ND	0.01
39337	alpha-BHC	ND	0.01
39338	beta-BHC	ND	0.05
34259	delta-BHC	ND	0.05
39340	gamma-BHC	ND	0.01
39350	Chlordane	ND	0.05
39310	4,4'-DDD	ND	0.02
39320	4,4'-DDE	ND	0.01
39300	4,4'-DDT	ND	0.02
39380	Dieldrin	ND	0.05
39361	Endosulfan I	ND	0.01
34356	Endosulfan II	ND	0.01
39351	Endosulfan sulfate	ND	0.05
39390	Endrin	ND	0.01
34366	Endrin aldehyde	ND	0.05
39410	Heptachlor	ND	0.02
39420	Heptachlor epoxide	ND	0.1
39400	Toxaphene	ND	0.5
34671	PCB 1016	ND	0.2
39488	PCB 1221	ND	0.2
39492	PCB 1232	ND	0.2
39496	PCB 1242	ND	0.2
39500	PCB 1248	ND	0.2
39504	PCB 1254	ND	0.2
39508	PCB 1260	ND	0.2

ND = Not Detected

Data Certified By ____________

Report Approved By Tom King

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1910 S STREET, SACRAMENTO, CALIFORNIA 95814 • 916-447-2946

ORGANOPHOSPHORUS PESTICIDES
EPA #614

Client: CH2M HILL
5090 CATERPILLAR ROAD
REDDING, CA 96003
ATTN: BARB HURLEY

Report Date: 03/15/90 Page: 13
Report #: 125847
Report for: U.S. BUREAU OF LAND MANAGEMENT
RDD28631.A0.30

Sample Description: 25841-1, Grab
SW-1

Anlab ID #: 125847-2 Units: ug/L

Date Sample Collected: 02/22/90
Time Sample Collected: NS
Date Received @ Lab: 02/27/90
Date Analysis Completed: 03/09/90

P.O. #: LRD 0125

STORET #	COMPOUND	CONCENTRATION	MDL
39580	Azinphos Methyl	ND	1
39560	Demeton-O	ND	1
-	Demeton-S	ND	1
39570	Diazinon	ND	1
39010	Disulfoton	ND	1
39530	Malathion	ND	1
39540	Parathion Ethyl	ND	1
39600	Parathion Methyl	ND	1

ND = Not Detected
NS = Not Specified

Data Certified By ________ Report Approved By Tom King

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ORGANOPHOSPHORUS PESTICIDES
EPA #614

Client: CH2M HILL
5090 CATERPILLAR ROAD
REDDING, CA 96003
ATTN: BARB HURLEY

Report Date: 03/15/90 **Page:** 14
Report #: 125847
Report for: U.S. BUREAU OF LAND MANAGEMENT
RDD28631.A0.30

Sample Description: 25841-2, Grab
SW-2

Anlab ID #: 125847-3 **Units:** ug/L

Date Sample Collected: 02/23/90
Time Sample Collected: NS
Date Received @ Lab: 02/27/90
Date Analysis Completed: 03/09/90

P.O. #: LRD 0125

STORET #	COMPOUND	CONCENTRATION	MDL
39580	Azinphos Methyl	ND	1
39560	Demeton-O	ND	1
-	Demeton-S	ND	1
39570	Diazinon	ND	1
39010	Disulfoton	ND	1
39530	Malathion	ND	1
39540	Parathion Ethyl	ND	1
39600	Parathion Methyl	ND	1

ND = Not Detected
NS = Not Specified

Data Certified By ________ Report Approved By Tom King

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ORGANOPHOSPHORUS PESTICIDES
EPA #614

Client: CH2M HILL
5090 CATERPILLAR ROAD
REDDING, CA 96003
ATTN: BARB HURLEY

Report Date: 03/15/90 **Page:** 15
Report #: 125847
Report for: U.S. BUREAU OF LAND MANAGEMENT
RDD28631.A0.30

Sample Description: 25841-3, Grab
SW-3

Anlab ID #: 125847-4 **Units:** ug/L

Date Sample Collected: 02/23/90
Time Sample Collected: NS
Date Received @ Lab: 02/27/90
Date Analysis Completed: 03/09/90

P.O. #: LRD 0125

STORET #	COMPOUND	CONCENTRATION	MDL
39580	Azinphos Methyl	ND	1
39560	Demeton-O	ND	1
-	Demeton-S	ND	1
39570	Diazinon	ND	1
39010	Disulfoton	ND	1
39530	Malathion	ND	1
39540	Parathion Ethyl	ND	1
39600	Parathion Methyl	ND	1

ND = Not Detected
NS = Not Specified

Data Certified By__________ **Report Approved By** Tom King

:slw

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ORGANOPHOSPHORUS PESTICIDES
EPA #614

Client: CH2M HILL
5090 CATERPILLAR ROAD
REDDING, CA 96003
ATTN: BARB HURLEY

Report Date: 03/15/90 **Page:** 16
Report #: 125847
Report for: U.S. BUREAU OF LAND MANAGEMENT
RDD28631.A0.30

Sample Description: 25841-4, Grab
SW-4

Anlab ID #: 125847-5 **Units:** ug/L

Date Sample Collected: 02/23/90
Time Sample Collected: NS
Date Received @ Lab: 02/27/90
Date Analysis Completed: 03/09/90

P.O. #: LRD 0125

STORET #	COMPOUND	CONCENTRATION	MDL
39580	Azinphos Methyl	ND	1
39560	Demeton-O	ND	1
-	Demeton-S	ND	1
39570	Diazinon	ND	1
39010	Disulfoton	ND	1
39530	Malathion	ND	1
39540	Parathion Ethyl	ND	1
39600	Parathion Methyl	ND	1

ND = Not Detected
NS = Not Specified

Data Certified By ____________ **Report Approved By** Tom King

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ORGANOPHOSPHORUS PESTICIDES
EPA #614

Client: CH2M HILL
5090 CATERPILLAR ROAD
REDDING, CA 96003
ATTN: BARB HURLEY

Report Date: 03/15/90 Page: 17
Report #: 125847
Report for: U.S. BUREAU OF LAND MANAGEMENT
RDD28631.AO.30

Sample Description: 25841-5, Grab
SW-5

Anlab ID #: 125847-6 Units: ug/L

Date Sample Collected: 02/23/90

Time Sample Collected: NS

Date Received @ Lab: 02/27/90

Date Analysis Completed: 03/09/90

P.O. #: LRD 0125

STORET #	COMPOUND	CONCENTRATION	MDL
39580	Azinphos Methyl............................	ND	1
39560	Demeton-O..................................	ND	1
-	Demeton-S..................................	ND	1
39570	Diazinon...................................	ND	1
39010	Disulfoton.................................	ND	1
39530	Malathion..................................	ND	1
39540	Parathion Ethyl............................	ND	1
39600	Parathion Methyl...........................	ND	1

ND = Not Detected
NS = Not Specified

Data Certified By KPely Report Approved By Tom King

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ORGANOPHOSPHORUS PESTICIDES
EPA #614

Client: CH2M HILL
5090 CATERPILLAR ROAD
REDDING, CA 96003
ATTN: BARB HURLEY

Report Date: 03/15/90 **Page:** 18
Report #: 125847
Report for: U.S. BUREAU OF LAND MANAGEMENT
RDD28631.A0.30

Sample Description: METHOD BLANK **Anlab ID #:** 125847-MB **Units:** ug/L

Date Analysis Completed: 03/09/90

P.O. #: LRD 0125

STORET #	COMPOUND	CONCENTRATION	MDL
39580	Azinphos Methyl............................	ND	1
39560	Demeton-O..................................	ND	1
-	Demeton-S..................................	ND	1
39570	Diazinon...................................	ND	1
39010	Disulfoton.................................	ND	1
39530	Malathion..................................	ND	1
39540	Parathion Ethyl............................	ND	1
39600	Parathion Methyl...........................	ND	1

ND = Not Detected

Data Certified By__________ Report Approved By Tom King

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CH2M HILL QUALITY ANALYTICS

CHAIN OF CUSTODY RECORD

PROJECT NUMBER RDD 28631.A0.30	PROJECT NAME BLM Stateline Landfill
CLIENT NAME Bureau of Land Management	
PROJECT MANAGER Mike Smith/RDD	COPY TO: Pete Lawson/RDD
REQUESTED COMP. DATE Normal, 23 day	SAMPLING REQUIREMENTS SDWA ☐ NPDES ☐ RCRA ☐ OTHER ______

CLIENT ADDRESS AND PHONE NUMBER
M. Smith
1525 Court
Rds. CA 96001 (916)243-5831

FOR LAB USE ONLY
LAB# 25841
LAB#
PROJECT NO.
ACK
VERIFIED
QUOTE#
BS
NO. OF SAMP
PG
OF

								ANALYSES REQUESTED												
STA NO.	DATE	TIME	COMP	GRAB	SOIL	SAMPLE DESCRIPTIONS (12 CHARACTERS)	# OF CONTAINERS	608	614	625 w/TIC's	8010/8020	RAS Metals	Total Phenols	TOH (Total Halogens)	pH, Cl, SO4=, Fl-	TDS	TOC	DOC	LAB ID	REMARKS
SW-1	2/22/90	1555		✓		Surface H2O Samples	4					✓		✓			✓	✓		
SW-1		1600		↓		↓	2								✓	✓				
SW-1		1605		↓		↓	4	✓	✓	✓			✓							
SW-1	2/22/90	1550		↓		↓	3				✓									
SW-2	2/23/90	1000		↓		↓	13	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	2	
SW-3	↓	1040		↓		↓	13	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	3	
SW-4	↓	1115		↓		↓	13	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	4	
SW-5	2/23/90	1145		✓		Surface H2O Samples	13	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	5	

SAMPLED BY AND TITLE Joe A. Brown / Sci. Scientist	DATE/TIME see above	RELINQUISHED BY Joe A. Brown	DATE/TIME 2/23/90 1530
RECEIVED BY:	DATE/TIME	RELINQUISHED BY:	DATE/TIME
RECEIVED BY:	DATE/TIME	RELINQUISHED BY:	DATE/TIME
RECEIVED BY LAB: Scott Willeby	DATE/TIME 2-23-90 3:36	SAMPLE SHIPPED VIA UPS BUS FED-EX [✓ HAND] OTHER ______	AIR BILL#

HAZWRAP/NEESA Y [✓ N]
QC LEVEL [✓ 1] 2 3
COC Yes
ICE YES
ANA REQ Yes
TEMP Cool
CUST SEAL Yes
Ph —
SAMPLE COND Good

REMARKS

ENTERED INTO LIMS
COC REVIEWED

Appendix H
HRS SCORING SHEETS

Appendix H

STATELINE DUMP SITE HAZARD RANKING SYSTEM SCORING

INTRODUCTION

This appendix provides a detailed description of the HRS scoring process referenced in Section 8 of the main report. It includes all of the assumptions which were made during the scoring process and contains the worksheets from which the final score was derived. Tables which are referenced as HRS Tables 2-2 through 5-10 are not included in this appendix and can be found in EPA 40 CFR 300.

SITE LOCATION AND DESCRIPTION

The Stateline Dump site is an unauthorized solid waste disposal site located on Bureau of Land Management (BLM) property in Modoc County, California (CH2M HILL, 1990). The site is situated in the approximate center of a 27-acre parcel that is bounded by the Oregon-California border to the north, private property to the west and south, and additional BLM holdings to the east and southeast (CH2M HILL, 1990). The site is located approximately 4 miles southeast of the town of Malin, Oregon, and approximately 10 miles east of the town of Tulelake, California (CH2M HILL, 1990).

The site received refuse for approximately 20 years until 1987, when BLM restricted access to the site with a cyclone fence (Weston, 1988). The area within the fence occupies approximately 3 acres, with the unauthorized disposal area occupying approximately 0.5 acre.

SOURCE CHARACTERIZATION

Prior to BLM's fencing of the site in 1987, access was provided by an unimproved road (Weston, 1988). Material was dumped into a ravine that bisects the parcel. The refuse fill was estimated to be 10 yards high, 66 yards wide, and 23 yards long (Weston, 1988). The unauthorized dump area occupies a 300-foot by 250-foot area of land (Weston, 1988). An accurate hazardous waste quantity determination with existing data is not possible; however, based on these dimensions, approximately 16,500 cubic yards of refuse are present (Weston, 1988).

The debris present at the site appears to be stratified by type. The lower layers of waste appear to be typical lumber mill waste materials, including metal strapping, sheet metal, old equipment, and oil and lubrication fluid drums. This layer contains limited visible domestic refuse. The upper, more recent, materials appear to be dominated by municipal waste, including white goods, car bodies, and domestic refuse (CH2M HILL, 1990). The EPA Region IX Technical Assistance Team (TAT) conducted a site visit in August 1987. While the TAT was at the site, some local farm workers attempted to dispose of a truckload of agricultural chemical containers at the site (CH2M HILL, 1990). There is no visible evidence that the facility operated as a burn dump (CH2M HILL, 1990).

The former dump slope face is divided by a flat 2- to 3-yard-wide berm. The berm is present around much of the slope face. The ravine that contains the refuse decreases in width to the north of the site (Weston, 1988).

A 6-foot-high surface runon diversion berm is present along the eastern boundary of the site. The ditch is connected to an upgradient manmade pond that appears to be associated with the old lumber mill near the site. No evidence of any recent water flow was found during a January 1990 site visit. The perimeter fence has helped to terminate dumping at the site.

IDENTIFICATION OF HAZARDOUS SUBSTANCES ASSOCIATED WITH THE SOURCE

In May 1988, an engineering consultant, under contract with the BLM, conducted a preliminary investigation at the site. Six shallow subsurface soil samples were collected from the waste pile for analysis. No groundwater, surface-water, or air samples were collected. A sampling grid was established for sampling the waste pile. The grid was established along the distance around the face of the landfill, which measured 224 feet along the berm. This distance was divided into four quadrants, and discrete sample locations were staked within each quadrant. Approximately four samples were taken from depths of 0 to 2-1/2 feet in each quadrant and then combined in the laboratory to form composite samples. Sample results for each quadrant are presented in Table 1.

In February and June 1990, a second engineering consultant, also under contract to BLM, conducted a site inspection. Twenty samples were collected from areas outside of the wastepile. During this sampling event, six soils/sediments, nine groundwater, and five surface-water samples were collected. Sample results for the soils/sediments are presented on Table 1. No contaminants were detected in the nine groundwater samples (Peter Lawson/CH2M HILL, 1991), and no contaminants were detected at significant levels in the soils/sediments.

One contaminant of concern (PCB 1260) was found in the offsite surface water. Because no PCB's were found during either of the previous investigations onsite, this compound was not used in the HRS scoring process.

Table 1
Sampling Data
(in µg/l unless otherwise noted)

Sheet 1 of 2

Chemical	Concentrations		Onsite Soil Sampling Locations				Offsite Surface-Water Locations					Maximum Surface-Water Concentration
	Background	Detection	Quad 1	Quad 2	Quad 3	Quad 4	SW-1	SW-2	SW-3	SW-4	SW-5	
Methylene Chloride	12	7	3	--	--	10	--	--	--	--	--	--
Toluene	7	--	3	--	--	--	--	--	--	--	--	--
Diethylphthalate	--	330	320	--	--	--	--	--	--	--	--	--
Di-n-butyl phthalate	--	330	810	--	--	--	--	--	--	--	--	--
Butyl benzyl pthalate	--	330	120	--	--	--	--	--	--	--	--	--
Bis(2-ethylhexyl) pthalate	--	330	120	--	--	--	--	--	--	--	--	--
Benzene	--	--	--	--	--	--	--	--	--	--	--	--
4,4'-DDT	--	60	--	100	--	--	--	--	--	--	--	--
4,4'-DDE	--	60	--	83	159	--	--	--	--	--	--	--
Arsenic	--	2,000[a]	8,900	15,200	--	--	--	--	3,100	4,400	--	4,400
Chromium	--	--[a]	--	--	7,900	--	--	--	--	--	--	--
Copper	--	4,000[a]	124,000	--	--	--	--	5,000	5,000	12,000	--	12,000
Iron	--	40 mg/l[a]	111,000 mg/l	--	20,300 mg/l	--	2,250 mg/l	961 mg/l	597 mg/l	5,390 mg/l	331 mg/l	5.390 mg/l
Lead	--	2,000[a]	299,000	153,000	293,000	31,600	--	--	--	2,900	--	2,900
Nickel	--	--[a]	--	--	91,200	--	--	--	--	--	--	--
Zinc	--	6 [a]	12,500	733,000	1,040	418,000	8	18,000	--	40,000	--	40,000
Aluminum	--	28	--	--	--	--	809	749	404	3,320	88	3,320
Barium	--	1.0	--	--	--	--	72	45	27	218	9	218
Calcium	--	94	--	--	--	--	99,400	6,190	10,400	18,300	18,100	99,400
Chloride	--	1,000	--	--	--	--	10,900	2,000	4,900	6,200	2,800	10,900

Table 1
Sampling Data
(in µg/l unless otherwise noted)

Sheet 2 of 2

Chemical	Concentrations		Onsite Soil Sampling Locations				Offsite Surface-Water Locations					Maximum Surface-Water Concentration
	Background	Detection	Quad 1	Quad 2	Quad 3	Quad 4	SW-1	SW-2	SW-3	SW-4	SW-5	
Fluoride	--	50	--	--	--	--	200	070	120	80	7	200
Potassium	--	1,000	--	--	--	--	6,300	2,100	2,600	8,400	1,700	6,300
Magnesium	--	50	--	--	--	--	89,000	2,470	4,720	7,830	9,950	89,000
Manganese	--	1.0	--	--	--	--	2,970	114	48	856	72	2,970
Sodium	--	200	--	--	--	--	91,000	3,490	10,900	8,550	8,210	91,000
Sulfate	--	1,000	--	--	--	--	--	3,400	8,800	4,800	26,000	8,800
Vanadium	--	3	--	--	--	--	11	8	15	43	10	43

[a] No detection limits provided; however, report stated data concentration exceeded three times background (Weston, 1988).

NOTE: -- = Analysis not performed.

EPA requires that sampling data used by EPA regions to score sites undergo a quality assurance review according to the policies and procedures established for the Contract Laboratory Program (CLP). Data used to prepare this HRS score for the Stateline Dump site were not subject to the quality assurance policies and procedures of the CLP.

IDENTIFICATION OF HAZARDOUS SUBSTANCES AVAILABLE TO A PATHWAY

Contaminants detected during the May 1988 and March 1990 sampling events, as presented in Table 1, were evaluated for availability to the four pathways. In evaluating each migration pathway, hazardous substances were evaluated based on both the attribution of the substance to a source (potential contamination) and chemical analysis (observed contamination). Only those hazardous substances meeting the criteria for an observed release are eligible for evaluation for the soil exposure pathway.

Hazardous substances attributable to the four pathways are listed on HRS Table 2-2, Sample Source Characterization Worksheet. Substances can be attributable to all pathways except the air pathway. Therefore the air pathway was not scored. This is consistent with EPA's policy only to score viable pathways.

Observed release can be established by either direct observation of the release of a hazardous substance into the media being evaluated or by chemical analysis of samples appropriate to the pathway being evaluated. The minimum standard to establish an observed release by chemical analysis is analytical evidence of a hazardous substance in the media significantly above the background level.

An observed release was established for this scoring as follows:

- If a background sample were available detecting the hazardous substance, an observed release was established when the sample concentration equaled or exceeded three times the background concentration.
- In the absence of a background sample, an observed release was established when the sample concentration equaled or exceeded three times the detection limit.

In addition to establishment of an observed release by chemical analysis, some portion of the release must be attributable to the site.

PATHWAY EVALUATION

A description of the information used to score the individual components of each pathway considered for scoring the Stateline Dump site is provided below. The pathways applicable for scoring include groundwater, surface water, and soil exposure. The air pathway was not evaluated since the site presents no observed or potential threat to the air.

GROUNDWATER PATHWAY

This section is organized to correspond with items on the HRS Groundwater Migration Pathway Scoresheet, referenced as HRS Table 3-1. Itemized numbers present in this section are consistent with the scoring sheet. The General Considerations subheading provides qualitative information about the aquifer of concern.

General Considerations

The groundwater is predominately sodium bicarbonate in character (CH2M HILL, 1990/Hotchkiss, 1968).

Two shallow water-bearing units have been identified near the Stateline Dump site. These are the fractured volcanic rocks that directly underlie the site and the valley fill lake sediments located directly downgradient of the site. Infiltration of surface water applied as irrigation and underflow from adjacent volcanic rocks probably are the principle sources of recharge to groundwater in the valley fill area. Precipitation and intermittent streamflow infiltrate into the fractured volcanic rocks, and are components of groundwater recharge (CH2M HILL, 1990)

Likelihood of Release

1. No contaminants met the criteria for an observed release. An observed release can be based on either direct observation or chemical analysis. No hazardous materials were documented to have been released to the groundwater, and sampling did not detect the presence of any hazardous constituents.

2. **Potential to Release**

   2a. **Containment**--Stateline Dump is an unauthorized refuse dump. Therefore, no liner was assumed present. The assigned value was obtained from HRS Table 3-2.

   2b. **Net Precipitation**--The annual net precipitation including consideration of evapotranspiration was calculated to be 6, using data available in the Literature Search Report, Expanded Site Investigation, CH2M HILL, January 1990. Precipitation for Tulelake, California, was used instead of

Malin, Oregon, because average monthly pan evaporation values were reported for Tulelake only. Based on the annual net precipitation, an assigned value was obtained from HRS Table 3-4.

2c. **Depth to Aquifer**--In an area close to the refuse pile, depth to aquifer was measured to be at 70 and 150 feet (Peter Lawson/CH2M HILL, 1991). These depths correspond with a depth to aquifer factor value of 3, as obtained from HRS Table 3-5.

2d. **Travel Time**

- Hydraulic Conductivity--Soils are classified as silty clays (Weston, December 1988). Based on this classification, a hydraulic conductivity value of 10^{-6} was obtained from HRS Table 3-6.
- Thickness of lowest hydraulic conductivity layer--A conservative thickness of "greater than 3 to 5 feet" was selected from HRS Table 3-7.

The assigned value was obtained from HRS Table 3-7, which is a matrix combining hydraulic conductivity and thickness.

2e. **Potential to Release** (Item 2a x (2b + 2c + 2d))--The assigned value was obtained by summing the factor values for net precipitation, depth to aquifer, and travel time, and multiplying this sum by the factor value for containment.

Waste Characteristics

4. **Toxicity/Mobility**--Eighteen inorganic substances were evaluated as potential threats to the groundwater. These substances are presented in Table 2, Chemical Data to Support Factor Scoring.

The toxicity/mobility assigned factor value was obtained from a matrix, HRS Table 3-9, that combines the mobility and toxicity factor values. The toxicity/mobility assigned factor value used for scoring is based on the hazardous substance with the highest toxicity/mobility factor value. Combined toxicity/mobility factor values evaluated for scoring are referenced in Table 2. For the Stateline Dump site, five substances tied for the highest toxicity/mobility assigned factor value score. These substances include arsenic, lead, chromium, nickel, and manganese.

Toxicity. In the groundwater pathway, toxicity is evaluated for human toxicity and is based on quantitative dose-response parameters. Human toxicity is established using a hierarchy outlined in the HRS for cancer and noncancer parameters. These parameters include slope factor, reference dose, and lethal dose.

Table 2
Chemical Data to Support Factor Scoring
(in µg/l unless otherwise noted)

Sheet 1 of 2

	Sampling Data Concentrations		Toxicity				Mobility			Persistence	Bioconcentration		
			Dose Response Parameters				Chemical Parameters				Chemical Parameters		
Chemical	**Onsite Soil**	**Offsite Surface Water**	**Slope Factor**	**RfD**	**LD$_{50}$**	**Toxicity Factor Value**	**Water Solubility**	**Distribution Coefficient**	**Mobility Factor Value**	**Persistence Factor Value**	**Freshwater Bioconcentration Factor**	**Log P**	**BCF Factor Value**
Arsenic	8,900	--	5×10^{1}	--	--	10,000	--	2×10^{2}	2×10^{-3}	0.07	17	--	50
Copper	124,000	--	--	--	--	0	--	3.5×10^{1}	2×10^{-3}	1	2.3×10^{4}	--	50,000
Iron	111,000 mg/l	--	--	--	--	0	--	2.5×10^{1}	2×10^{-3}	1	--	--	0.5
Lead	299,000	--	--	--	--	10,000	--	$9 \times 10_{2}$	2×10^{-3}	1	1.7×10^{3}	--	5,000
Zinc	12,500,000	--	--	2×10^{-1}	--	10	--	4×10^{1}	2×10^{-3}	1	9.6×10^{2}	--	500
Chromium	79,000	--	6.48×10^{1}	--	--	10,000	--	8.5×10^{2}	2×10^{-3}	1	--	--	0.5
Nickel	91,200	--	8.4×10^{-1}	--	--	10,000	--	1.5×10^{2}	2×10^{-3}	1	1.1×10^{2}	--	500
Aluminum	--	3,320	--	--	--	0	--	--	2×10^{-3}	1	--	--	0.5
Barium	--	218	--	1×10^{-3}	--	1,000	--	6×10^{1}	2×10^{-3}	0.07	--	--	0.5
Calcium[a]	--	99,400	--	--	--	0	--	--	2×10^{-3}	0.07	--	--	0.5
Chloride[b]	--	10,900	1.3×10^{-2}	--	1.5×10^{2}	10	5.32×10^{3}	--	1	0.07[c]	--	0.91	5
Fluorine	--	200	--	--	--	100	--	1.5×10^{2}	2×10^{-3}	0.07	--	--	0.5
Magnesium	--	89,000	--	--	--	0	--	--	2×10^{-3}	1	--	--	0.5
Manganese	--	2,970	--	3×10^{-4}	--	10,000	--	6.5×10^{1}	2×10^{-3}	1	3.5×10^{5}	--	50,000
Potassium[d]	--	6,300	--	--	--	0	--	--	2×10^{-3}	1	--	--	0.5
Sodium	--	91,000	--	--	--	0	--	1.0×1.0^{2}	2×10^{-3}	1	--	--	0.5
Sulfate	--	8,800	--	--	--	0	--	--	2×10^{-3}	0.07	--	--	0.5
Vanadium[e]	--	43	--	9×10^{-2}	--	100	--	--	2×10^{-3}	0.07	--	--	0.5

[a] HRS factor data were based on values for calcium chromate.
[b] HRS factor data were based on values for metal chloride.
[c] Persistence factor was based on volatilization half-life for lakes of 0.16 days.
[d] HRS factor data were based on values for potassium chromate.
[e] HRS factor data were based on values for vanadium oxide.
Notes: AWQC = Aquatic Water Quality Criteria; -- = Analyses not performed.

Table 2
Chemical Data to Support Factor Scoring
(in μg/l unless otherwise noted)

Sheet 2 of 2

Chemical	Ecotoxicity				Assigned Factor Value Combinations				
	Dose Response Parameters			Ecotoxicity Factor Value	Toxicity/Mobility	Toxicity/Persistence	Toxicity/Persistence/BCF	Ecosystem Toxicity/Persistence	Ecosystem Toxicity/Persistence/BCF
	Chronic AWQC	Acute AWQC	LC_{50}						
Arsenic	--	--	1,700	100	20	700	3.5×10^4	7	350
Copper	--	--	--	0	0	0	0	0	0
Iron	1,000	--	--	10	0	0	0	10	5
Lead	--	--	530	1,000	20	10,000	5×10^7	1,000	5×10^6
Zinc	--	--	68	10,000	0.02	10	5,000	10,000	5×10^6
Chromium	--	--	22	10,000	20	10,000	5,000	10,000	5,000
Nickel	160	--	--	10	20	10,000	5×10^6	10	5,000
Aluminum	--	--	--	0	0	0	0	0	0
Barium	--	--	4.1×10^5	1	2	70	35	0.07	0.035
Calcium[a]	--	--	--	0	0	0	0	0	0
Chloride[b]	--	--	5.5×10^5	1	10	0.7	3.5	0.7	0.035
Fluorine	--	--	--	0	0.2	7	3.5	0	0
Magnesium	--	--	--	0	0	0	0	0	0
Manganese	--	--	--	0	20	10,000	5×10^8	0	0
Potassium[d]	--	--	22	10,000	0	0	0	10,000	5,000
Sodium	--	--	--	0	0	0	0	0	0
Sulfate	--	--	--	0	0	0	0	0	0
Vanadium[e]	--	--	--	0	0.2	7	3.5	0	0

[a] HRS factor data were based on values for calcium chromate.
[b] HRS factor data were based on values for metal chloride.
[c] Persistence factor was based on volatilization half-life for lakes of 0.16 days.
[d] HRS factor data were based on values for potassium chromate.
[e] HRS factor data were based on values for vanadium oxide.

Notes: AWQC = Aquatic Water Quality Criteria; -- = Analyses not performed.

RDD/R5/002.51-2

EPA-approved sources were used to obtain the chemical-specific parameter values for each of the eighteen inorganic substances. These sources include the following:

- Slope Factor--U.S. EPA, 1989. Health Effects Assessment Summary Tables (HEAST). Fourth Quarter. FY 1989. Office of Solid Waste and Emergency Response (OERR 9200-6-303-89-4)
- Reference Dose--U.S. EPA, 1989. Health Effects Assessment Summary Tables (HEAST). Fourth Quarter. FY 1989. Office of Solid Waste and Emergency Response (OERR 9200-6-303-89-4)
- Lethal Dose--C-E Environmental Inc. 1990. The identification of health effects data for chemicals contained in the Clean Air Act amendments. Final report to Dr. John Vanderburg. USEPA. Research Triangle Park, North Carolina.

These chemical-specific parameter values were then applied to the toxicity tables in the HRS to obtain an assigned factor value. Actual chemical-specific parameter values and their resultant assigned factor values used for scoring this pathway are referenced in Table 2.

As instructed in the HRS, if neither a slope factor, reference dose, nor a lethal dose is available for a chemical, a toxicity score of zero is used for scoring purposes. For hazardous substances with applicable toxicity data, the substance with the highest toxicity assigned factor value is used for scoring. For the Stateline Dump site, six substances tied for the highest toxicity assigned factor value score. These substances include arsenic, lead, chromium, nickel, barium, and manganese.

Mobility. In the groundwater pathway, mobility is based on water solubility and the distribution coefficient. EPA-approved sources were used to obtain the chemical-specific values for water solubility and the distribution coefficient. These sources include the following:

- Water Solubility--U.S. EPA. 1989. RAGS Appendices, Exhibit A-1 of the Superfund Public Health Evaluation Manual (SPHEM): Physical, Chemical,and Fate Data. Office of Emergency and Remedial Response (ECAO-CIN-745)
- Distribution Coefficient--De Minimus Waste Impacts Analysis, Nuclear Regulatory Commission, February 1984.

The mobility score was then obtained from a matrix, HRS Table 3-8, that combines the chemical-specific values for water solubility and the distribution coefficient. Actual chemical-specific parameter values and their resultant assigned factor values used for scoring this pathway are referenced in Table 2.

Consistent with EPA's approach, if neither a water solubility nor a distribution coefficient value was available for a chemical, a default value of 2 x 10^{-3} was used for scoring purposes.

5. **Hazardous Waste Quantity**--It has been estimated that a maximum of 16,500 cubic yards of refuse are present at the dump site (CH2M HILL, 1990). Hazardous waste quantity was evaluated from waste volume since hazardous constituent quantity and hazardous wastestream quantity were unavailable. The hazardous waste quantity value was determined as 6.6 from HRS Table 2-5 under the "landfill" volume classification. This value was used to obtain a hazardous waste quantity factor value from HRS Table 2-6. This value was determined to be 1.

6. **Waste Characteristics**--The waste characteristics category value was determined from the product of the toxicity/mobility value and the hazardous waste quantity value. The product, calculated to be 20, was then used to obtain a factor value from HRS Table 2-7.

Targets

7. **Nearest Well**--All residences depend on groundwater as a drinking water and irrigation source (CH2M HILL, 1990). It was assumed that all residences have drinking water wells on their property. The nearest residence is 1,800 feet (0.34 mile) from the refuse pile (CH2M HILL, 1990). The nearest well factor value was obtained from HRS Table 3-11 using the "greater than one-quarter to one-half" distance category.

8. **Population**

   8a. **Level I Concentrations**--Not applicable.

   8b. **Level II Concentrations**--Not applicable.

   8c. **Potential Contamination**--This factor is based on the number of people served by drinking water wells within 4 miles of the site.

   Five residences are located within 1 mile of the site, and 19 residences are located within 3 miles of the site (CH2M HILL, 1990). All residences depend on groundwater as drinking water and irrigation sources (CH2M HILL, 1990).

   The town of Malin, Oregon, is served by four municipal wells at an average depth of 350 feet. These wells probably tap the confined aquifer that lies between lake sediments (CH2M HILL, 1990) and are located within the 4-mile target distance limit (Peter Lawson/CH2M HILL, 1991). It is conservatively estimated that Malin has a population of 3,000 people.

Klamath Project water is available for irrigation and residential use in Oregon, approximately 3 miles northwest of the site (CH2M HILL, 1990). Potential receptors for this drinking water have been conservatively estimated to be 1,000 people (Pam Chapman/CH2M HILL, 1991).

The total population potentially served by drinking water wells within 4 miles of the site was determined using the distance-weighted rings on HRS Table 3-12 and a conservative estimate of 5 persons dwelling per household where house counts are specified. The following chart details the numbers used to determine the total population potentially affected.

Distance Category	Number of People	HRS Value from Table 3-12
1/2 to 1 mile	25	5
1 to 2 miles	50	10
2 to 3 miles	1,045	212
3 to 4 miles	3,000	131
TOTAL		358

9. **Resources**--Land use in the vicinity of the site is predominately for irrigation, dryland agriculture, and rangeland for cattle. Residential wells are used as a water source for irrigation, as well as for drinking water (CH2M HILL 1990). The conservative assumption was made that agriculture and livestock activities support commercial purposes and that irrigation and livestock might use water from residential wells.

10. **Wellhead Protection Area**--The site is not known to be in a designated Safe Drinking Water Act Wellhead Protection Area.

11. **Targets**--The targets category value was calculated as the sum of the following values: nearest well, population, resources, and wellhead protection.

12. **Pathway Score**--The pathway score was calculated as the product of the totals for likelihood of release, waste characteristics, and targets divided by a scaling factor of 82,500.

Table 3, which follows, is modeled on HRS Table 3-1, and contains the scores resulting from the use of the Hazard Ranking System for the groundwater migration pathway for the Stateline Dump site.

SURFACE-WATER PATHWAY

The surface water overland/flood migration component is evaluated based on the drinking water threat, human food chain threat, and environmental threat for each watershed. Each threat is evaluated based on the three factor categories: likelihood of release, waste characteristics, and targets.

This section is organized to correspond with items on the HRS Surface Water Overland/Flood Migration Component Scoresheet, referenced as HRS Table 4-1. Itemized numbers present in this section are consistent with the scoring sheet.

DRINKING WATER THREAT, SURFACE-WATER PATHWAY

In general, the drinking water threat is based on observed or potential contamination of surface water used for drinking water.

Likelihood of Release

1. **Observed Release**

   Eleven contaminants met the criteria for an observed release to surface water. In addition, the seven inorganic substances meeting the criteria for an observed release to soil are potential threats to the surface water. An observed release can be based on either direct observation or chemical analysis. For additional information on establishment of an observed release, refer to the discussion under the Identification of Hazardous Substances Available to a Pathway section of this document.

2. **Potential to Release by Overland Flow**--Not applicable. Requirements for an observed release to surface water were met.

   2a. **Containment**--Not applicable. Requirements for an observed release to surface water were met.

   2b. **Runoff**--Not applicable. Requirements for an observed release to surface water were met.

   2c. **Distance to Surface Water**--Not applicable. Requirements for an observed release to surface water were met.

   2d. **Potential to Release by Overland Flow**--Not applicable. Requirements for an observed release to surface water were met.

3. **Potential to Release by Flood**--Not applicable. Requirements for an observed release to surface water were met.

   3a. **Containment (Flood)**--Not applicable. Requirements for an observed release to surface water were met.

   3b. **Flood Frequency**--Not applicable. Requirements for an observed release to surface water were met.

4. **Potential to Release**--Not applicable. Requirements for an observed release to surface water were met.

5. **Likelihood of Release**--Likelihood of release is based on the highest score available for either observed release or potential to release. Because requirements were met for observed release to the surface water, this value is based on the score for an observed release.

Waste Characteristics

6. **Toxicity/Persistence**

Eighteen inorganic substances were evaluated as potential threats to the surface water. These substances are presented in Table 2, Chemical Data to Support Factor Scoring.

The toxicity/persistence assigned factor value was obtained from a matrix, HRS Table 4-12, that combines the persistence and toxicity factor values. The toxicity/persistence assigned factor value used for scoring is based on the hazardous substance with the highest toxicity/persistence factor value. Combined toxicity/persistence factor values evaluated for scoring are referenced in Table 2. For the Stateline Dump site, lead, chromium, nickel, and manganese tied for the highest toxicity/persistence assigned factor value score.

Toxicity. For the drinking water threat within the surface-water pathway, toxicity is evaluated for human toxicity following the same hierarchy and procedures as for the groundwater pathway. Refer to the discussion under Item 4 of the Groundwater Pathway section of this document for additional details on scoring for human toxicity.

For hazardous substances with applicable toxicity data, the substance with the highest toxicity assigned factor value is used for scoring. Five substances tied for the highest drinking water threat toxicity assigned factor value score. These substances include arsenic, lead, chromium, nickel, and manganese. Chemical-specific toxicity information is referenced in Table 2.

Persistence. For the drinking water threat, persistence is evaluated based primarily on the half-life of the hazardous substances of concern and secondarily on the sorption of the hazardous substances to sediments. The half-life in surface water is defined for HRS purposes as the time required to reduce the initial concentration in surface water by one-half as a result of the combined decay processes of biodegradation, hydrolysis, photolysis, and volatilization. Sorption to sediments is evaluated for the HRS based on the logarithm of the n-octanol-water partition coefficient (log Kow) of the hazardous substance. EPA-approved sources were used to obtain the chemical-specific values for half-life and log Kow. These sources include the following:

- Biodegradation Half-life--Syracuse Research Corporation (SRC). 1989. Chemical Fate Rate Constants for SARA Section 313 Chemicals and Superfund Public Health Evaluation Manual (SPHEM) Chemicals.
- Hydrolysis Half-life--Syracuse Research Corporation (SRC). 1989. Chemical Fate Rate Constants for SARA Section 313 Chemicals and Superfund Public Health Evaluation Manual (SPHEM) Chemicals.
- Photolysis Half-life--Syracuse Research Corporation (SRC). 1989. Chemical Fate Rate Constants for SARA Section 313 Chemicals and Superfund Public Health Evaluation Manual (SPHEM) Chemicals.
- Volatilization Half-life--GSC Corporation. 1990. CHEMEST Database.
- Log Kow--Versar. 1989. Impact of Variability in Log P Values on HRS Bioaccumulation Potential Scores.

Persistence factor values based on half-life were obtained from HRS Table 4-10. For hazardous substances for which half-life and Log Kow data are not available, default values were assigned. Default values assigned include the following:

- A default value of 1 was assigned for all metals.
- A default value of 0.07 was assigned for nonmetals.

Assigned factor values for the hazardous substances of concern are referenced in Table 2. All chemicals except chloride were scored using a default value.

7. **Hazardous Waste Quantity**--For the drinking water threat within the surface-water pathway, hazardous waste quantity is evaluated following the same hierarchy and procedures as for the groundwater pathway. Refer to Item 5 of the Groundwater Pathway section of this document for additional details on scoring for human toxicity.

8. **Waste Characteristics**--The waste characteristics category value was determined from the product of the toxicity/persistence value and the hazardous waste quantity value. The product, calculated to be 10,000, was then used to obtain a factor value from HRS Table 2-7.

Targets

9. **Nearest Intake**--There are no surface-water intakes used as a source for drinking water within the surface-water target distance limit. Therefore, there are no applicable intakes.

10. **Population**--This factor is based on the number of people served by drinking water drawn from intakes that are along the overland/flood hazardous substance migration path and within the target distance limit from the refuse pile. There are no applicable surface-water intakes.

    10a. **Level I Concentration**--Not applicable. Refer to Item 10 above.
    10b. **Level II Concentration**--Not applicable. Refer to Item 10 above.
    10c. **Potential Contamination**--Not applicable. Refer to Item 10 above.
    10d. **Population**: Not applicable--Refer to Item 10 above.

11. **Resources**--It was assumed that the in-water segment of the manmade lakes might be used as a drinking water source for commercial livestock (Pam Chapman/CH2M HILL, 1991).

12. **Targets**--The drinking water targets were calculated as the sum of the following factors: nearest intake, population, and resources.

13. **Drinking Water Threat Score**--The drinking water threat score was calculated as the product of the totals for likelihood of release, waste characteristics, and targets, divided by a scaling factor of 82,500.

HUMAN FOOD CHAIN THREAT, SURFACE-WATER PATHWAY

In general, the human food chain threat is based on observed or potential contamination of fisheries, or portions of fisheries, within the surface-water target distance limit.

Likelihood of Release

14. **Likelihood of Release**--For the human food chain threat within the surface-water pathway, likelihood of release is evaluated following the same hierarchy and procedures as for the drinking water threat within the surface-water pathway. Refer to Item 1 of the Drinking Water Threat, Surface-Water Pathway section of this document for additional details on scoring for an observed release.

Waste Characteristics

15. Toxicity/Persistence/Bioaccumulation

The toxicity/persistence/bioaccumulation assigned factor value was obtained from a matrix, HRS Table 4-16, that combines the toxicity/persistence and bioaccumulation factor values. The toxicity/persistence/bioaccumulation assigned factor value used for scoring is based on the hazardous substance with the highest toxicity/persistence/bioaccumulation factor value. Combined toxicity/persistence/ bioaccumulation factor values evaluated for scoring are referenced in Table 2. For the Stateline Dump site, manganese had the highest toxicity/persistence/ bioaccumulation assigned factor value score.

Toxicity/Persistence. For the human food chain threat, toxicity/persistence is evaluated using the same approach as for toxicity/persistence within the drinking water threat of the surface-water pathway. Refer to Item 6 of the Drinking Water Threat, Surface-Water Pathway section of this document for additional details on determining a toxicity/persistence score.

Bioaccumulation. Bioaccumulation is evaluated for the human food chain threat using the following data hierarchy:

- Bioconcentration factor (BCF) data
- Logarithm of the n-octanol-water partition coefficient (Log Kow)
- Water solubility data

EPA-approved sources were used to obtain the chemical-specific values for these data. These sources include the following:

- Bioconcentration factor (BCF) data--Versar. 1989. Issue Paper Bioaccumulation Potential Based on Ambient Water Quality Criteria Documents.

- Logarithm of the n-octanol-water partition coefficient (log Kow)--Versar. 1989. Impact of Variability in Log P Values on HRS Bioaccumulation Potential Scores Based on Peer-Reviewed Literature.

- Water Solubility Data--U.S. EPA. 1989. RAGS Appendices, Exhibit A-1 of the Superfund Public Health Evaluation Manual (SPHEM): Physical, Chemical, and Fate Data. Office of Emergency and Remedial Response (ECAO-CIN-745).

Chemical-specific values were used to obtain a bioaccumulation potential factor value from HRS Table 4-15. Actual chemical-specific parameter values and their resultant assigned factor values used for scoring this pathway are referenced in Table 2.

Consistent with EPA's approach, if no chemical-specific data were available for a hazardous substance of concern, a default value of 0.5 was used for scoring.

16. **Hazardous Waste Quantity**--For the human food chain threat within the surface-water pathway, hazardous waste quantity is evaluated following the same hierarchy and procedures as for the groundwater pathway. Refer to Item 5 of the Groundwater Pathway section of this document for additional details on determining a toxicity/persistence/bioaccumulation score.

17. **Waste Characteristics**--The waste characteristics category value was determined from the product of the toxicity/persistence/bioaccumulation value and the hazardous waste quantity value. The product, calculated to be 100 was then used to obtain a factor value from HRS Table 2-7.

Targets

18. **Food Chain Individual**--There are no fisheries, or portions of fisheries, within the target distance limit of the watershed (Keith Marine/CH2M HILL, 1991).

19. **Population**--There are no fisheries, or portions of fisheries, within the target distance limit of the watershed (Keith Marine/CH2M HILL, 1991).

    19a. **Level I Concentration**--Not applicable. Refer to Item 19 above.

    19b. **Level II Concentration**--Not applicable. Refer to Item 19 above.

    19c. **Potential Human Food Chain Contamination**--Not applicable. Refer to Item 19 above.

20. **Targets**--The human food chain targets were calculated as the sum of the following factors: food chain individual and population.

21. **Human Food Chain Threat Score**--The human food chain threat score was calculated as the product of the totals for likelihood of release, waste characteristics, and targets divided by a scaling factor of 82,500.

ENVIRONMENTAL THREAT, SURFACE-WATER PATHWAY

The environmental threat is based on the observed or potential contamination of sensitive environments, including wetlands, within the surface-water target distance limit.

Likelihood of Release

22. **Likelihood of Release**--For the environmental threat within the surface-water pathway, likelihood of release is evaluated following the same hierarchy and

procedures as for the drinking water threat within the surface-water pathway. Refer to Item 1 of the Drinking Water Threat, Surface-Water Pathway section of this document for additional details.

Waste Characteristics

23. Ecosystem Toxicity/Persistence/Bioaccumulation

The ecosystem toxicity/persistence/bioaccumulation assigned factor value was obtained from a matrix, HRS Table 4-21, that combines the ecosystem toxicity/persistence and bioaccumulation factor values. The ecosystem toxicity/persistence/bioaccumulation assigned factor value used for scoring is based on the hazardous substance with the highest ecosystem toxicity/persistence/bioaccumulation factor value. Combined ecosystem toxicity/persistence/bioaccumulation factor values evaluated for scoring are referenced in Table 2. For the Stateline Dump site, lead and zinc tied for the highest ecosystem toxicity/persistence/bioaccumulation assigned factor value score.

Ecosystem Toxicity. For environmental targets within the surface-water pathway, toxicity is evaluated for ecosystem threats rather than for human toxicity as in the groundwater and soil exposure pathways, and drinking water threat of the surface-water pathway. Ecosystem toxicity is based on a hierarchy of chemical-specific data parameters outlined in HRS Table 4-19. These parameters include: chronic and acute Ambient Water Quality Criteria and Ambient Aquatic Life Advisory Concentrations, and LC50 values. EPA-approved sources were used to obtain the chemical-specific parameter values for the hazardous substances of concern. These sources include the following:

- Ambient Water Quality Criteria--U.S. EPA. 1988. Quality Criteria for Water - 1986. Office of Water (EPA 940/5-86-001).

- LC50--U.S. EPA. 1990. Aquatic Information Retrieval (ACQUIRE) database. Environmental Research Laboratory - Duluth.

The HRS also includes chronic and acute Ambient Aquatic Life Advisory Concentrations in the data hierarchy. However, EPA has not authorized the use of any specific Ambient Aquatic Life Advisory Concentration values for scoring purposes.

These chemical-specific parameter values were applied to HRS Table 4-19 to obtain an ecotoxicity toxicity assigned factor value. Actual chemical-specific parameter values and their resultant assigned factor values used for scoring this pathway are referenced in Table 2.

As instructed in the HRS, if neither Ambient Water Quality Criteria, Ambient Aquatic Life Advisory Concentrations, nor a lethal concentration is available for a chemical, an ecosystem toxicity score of zero is used for scoring purposes.

Persistence. For the environmental threat within the surface-water pathway, persistence is evaluated following the same hierarchy and procedures as for the drinking water threat within the surface-water pathway. Refer to Item 6 of the Drinking Water Threat, Surface-Water Pathway section of this document for additional details on persistence scoring.

Ecosystem Toxicity/Persistence. The ecosytem toxicity/persistence assigned factor value was obtained from a matrix, HRS Table 4-20, that combines the persistence and ecosystem toxicity factor values. The ecosystem toxicity/ persistence assigned factor value used for scoring is based on the hazardous substance with the highest ecosystem toxicity/persistence factor value. Combined ecosystem toxicity/persistence factor values evaluated for scoring are referenced in Table 2. For the Stateline Dump site, zinc, chromium, and potassium tied for the highest ecosystem toxicity/persistence assigned factor value score.

Bioaccumulation. For the environmental threat within the surface-water pathway, bioaccumulation was evaluated following the same hierarchy and procedures as for the human food chain threat within the surface-water pathway. Refer to Item 15 of the Human Food Chain Threat, Surface-Water Pathway section of this document for additional details on bioaccumulation scoring.

24. **Hazardous Waste Quantity**--For the environmental threat within the surface-water pathway, hazardous waste quantity is evaluated following the same hierarchy and procedures as for the groundwater pathway. Refer to Item 5 of the Groundwater Pathway section of this document for additional details on hazardous waste quantity scoring.

25. **Waste Characteristics**--The waste characteristics category value was determined from the product of the ecosystem toxicity/persistence/bioaccumulation value and the hazardous waste quantity value. The product, calculated to be 5,000,000, was then used to obtain a factor value from HRS Table 2-7.

Targets

26. **Sensitive Environments**

Sensitive environments within the 15-mile target distance limit of the Stateline Dump site include wetland bodies. No other type of sensitive environment is present (Keith Marine/CH2M HILL, 1991). Surface-water bodies around the site include:

- Tulelake sump
- Spring
- Manmade canal
- Storage reservior
- Perennial stream
- Stock pond

The Tulelake sump and the spring were eliminated from evaluation as sensitive environment targets because they are not along the hazardous substance migration pathway (Mike Smith/CH2M HILL, 1991). According to the U.S. Fish and Wildlife Service, the manmade canal, storage reservoir, and stock pond are each classified as a POWZ (Palustrine Open Water Manmade) wetland. The perennial stream is classified as a PF01 (Broadleaf Deciduous Nontidal) wetland.

26a. **Level I Concentrations**--Sensitive environments that met the criteria for observed contamination were evaluated for Level I and Level II concentrations. Level I concentrations applied when media-specific concentrations for the wetland targets met the criteria for an observed release for the pathway and were at or above media-specific benchmark values. Hazardous substances associated with the Stateline Dump site were evaluated for Level I and Level II concentrations. These data are presented in Table 4, Evaluation of Level I and Level II Concentrations at Surface-Water Sampling Locations. Table 5 lists the substance-specific benchmark values used for evaluation. These benchmark values were collated from EPA-approved sources.

Table 6, Summary of the Identification of Contaminants Meeting Level I and Level II Concentrations at Surface-Water Sampling Locations, identifies two surface-water sampling locations that meet the criteria for Level I concentrations--SW-4 and SW-5. Because SW-4 and SW-5 also meet the criteria for Level II, they were evaluated for Level II consideration. This approach is consistent with HRS Section 4.1.4.3.1.1. There were no targets that singularly met the criteria for Level I concentrations.

26b. **Level II Concentrations**--Level II concentrations applied when media-specific concentrations for the wetland targets met the criteria for an observed release for the pathway and were less than media-specific benchmark values. Table 6 identifies four surface-water sampling locations that meet the criteria for Level II concentrations--SW-2, SW-3, SW-4, and SW-5.

Consistent with HRS procedures, a value from HRS Table 4-23 and 4-24 was selected for each Level II sampling location. HRS Table 4-23 provides sensitive environment rating values for each sensitive environment. The applicable targets at the Stateline Dump site did not qualify for a

Table 4
Evaluation of Level I and Level II Concentrations At Surface-Water Sampling Locations
(µg/l)

Chemical	Detection Limit	Benchmark Concentration	Sample Locations											
			SW-1: Spring				SW-2: Manmade Canal[a]				SW-3: Storage Reservoir[b]			
			Sample Concentration	Meets Criteria for Observed Release	Meets Level I	Meets Level II	Sample Concentration	Meets Criteria for Observed Release	Meets Level I	Meets Level II	Sample Concentration	Meets Criteria for Observed Release	Meets Level I	Meets Level II
Arsenic	2,000	1,700	--	--	--	--	--	--	--	--	--	--	--	--
Copper	4,000	12	--	--	--	--	--	--	--	--	--	--	--	--
Iron	40	1,000	2,250	Yes	Yes	--	961	Yes	No	Yes	597	Yes	No	Yes
Lead	2,000	530	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	6	68	8	No	No	No	18	Yes	No	Yes	6	No	No	No
Aluminum	28	--	809	Yes	No	No	749	Yes	No	No	404	Yes	No	No
Barium	1	410,000	72	Yes	No	Yes	45	Yes	No	Yes	27	Yes	No	Yes
Calcium[c]	94	--	99,400	Yes	No	No	6,190	Yes	No	No	10,400	Yes	No	No
Chloride[d]	1,000	550,000	10,900	Yes	No	Yes	2,000	No	No	No	4,900	Yes	No	Yes
Fluoride	50	--	200	Yes	No	No	70	No	No	No	120	No	No	No
Potassium[e]	1,000	22	6,300	Yes	Yes	No	2,100	No	No	No	2,600	No	No	No
Magnesium	50	--	89,000	Yes	No	Yes	2,470	Yes	No	No	4,720	Yes	No	No
Manganese	1.0	--	2,970	Yes	No	Yes	114	Yes	No	No	48	Yes	No	No
Sodium	200	--	910,00	Yes	No	Yes	3,490	Yes	No	No	10,900	Yes	No	No
Sulfate	1,000	--	--	--	--	--	3,400	Yes	No	No	8,800	Yes	No	No
Vanadium[f]	3	--	11	No	No	No	8	No	No	No	15	Yes	No	No

Table 4 (continued)
Evaluation of Level I and Level II Concentrations
At Surface-Water Sampling Locations
(µg/l)

Chemical	Detection Limit	Benchmark Concentration	Sample Locations							
			SW-4: Manmade Canal[a]				SW-5: Stock Pond[b]			
			Sample Concentration	Meets Criteria for Observed Release	Meets Level I	Meets Level II	Sample Concentration	Meets Criteria for Observed Release	Meets Level I	Meets Level II
Arsenic	2,000	1,700	--	--	--	--	--	--	--	--
Copper	4,000	12	--	--	--	--	--	--	--	--
Iron	40	1,000	5,390	Yes	Yes	No	--	--	--	--
Lead	2,000	530	2,900	No	No	No	331,000	Yes	Yes	--
Zinc	6	68	40,000	Yes	No	Yes	<6	No	No	--
Aluminum	28	--	3,320	Yes	No	No	88	Yes	No	No
Barium	1	410,000	218	Yes	No	Yes	9	Yes	No	Yes
Calcium[c]	94	--	18,300	Yes	No	No	18,100	Yes	No	No
Chloride[d]	1,000	550,000	6,200	Yes	No	Yes	2,800	No	No	No
Fluoride	50	--	80	No	No	No	7	No	No	No
Potassium[e]	1,000	22	8,400	Yes	Yes	No	1,700	No	No	No
Magnesium	50	--	7,830	Yes	No	No	9,950	Yes	No	No
Manganese	1.0	--	856	Yes	No	No	72	Yes	No	No
Sodium	200	--	8,550	Yes	No	No	8,210	Yes	No	No
Sulfate	1,000	--	4,800	Yes	No	No	26,000	Yes	No	No
Vanadium[f]	3	--	43	Yes	No	No	10	Yes	No	No

[a] Manmade canal falls under the U.S. Fish and Wildlife classification of POWZ, Palustrine Open Water Manmade Wetland.
[b] Storage reservoir and stock pond fall under the U.S. Fish and Wildlife classification of POWZ, Palustrine Open Water Manmade Wetland.
[c] HRS benchmark data were based on values for calcium chromate.
[d] HRS benchmark data were based on values for methyl chloride.
[e] HRS benchmark data were based on values for posassium chromate.
[f] HRS benchmark data were based on values for vanadium oxide.

Table 5 Substance-Speciic Ecosystem Benchmark Values (µg/l)		
	Benchmarks	
	Chronic Freshwater AWQC[a]	**LC_{50} Freshwater[b]**
Arsenic		1,700
Copper	12	
Iron	1,000	
Lead		530
Zinc		68
Barium		410,000
Chloride		550,000
Potassium		22

[a] U.S. EPA. Quality Criteria for Water-1986. Office of Water (EPA 440/5-86-001).

[b] U.S. EPA. 1990. Aquatic Information Retrieval (ACQUIRE) database. Environmental Research Laboratory-Duluth.

NOTE: No benchmark values are available for aluminum, calcium, fluorine, magnesium, manganese, sodium, sulfate, or vanadium.

Table 6
Summary of the Identification of Contaminants Meeting Level I and Level II Concentrations at Surface-Water Sampling Locations

	SW-1	**SW-2**	**SW-3**	**SW-4**	**SW-5**
Level I	Iron Potassium	None	None	Iron Potassium	Lead
Level II	Barium Chloride	Iron Zinc Barium	Iron Barium Chloride	Zinc Barium Chloride	Barium

value from HRS Table 4-23. Therefore, a zero value was selected for each sensitive environment. HRS Table 4-24 provides a wetlands rating value based on the distance of the wetlands along the hazardous substance migration pathway. Wetland distances for the three Level II wetlands include:

- Manmade Canal--2,100 feet/0.40 mile along the hazardous substance migration pathway
- Storage Reservior--2,025 feet/0.38 mile along the hazardous substance migration pathway
- Stock Pond--750 feet/0.14 mile along the hazardous substance migration pathway

Based on these distances and the HRS scoring instructions, the site received a Level II scoring value of 25.

26c. **Potential Contamination**--The perennial stream, classified as a PF01 (Broadleaf Deciduous Nontidal) wetland was evaluated for potential contamination. The wetland distance used for HRS Table 4-24 was 1,800 feet/0.34 mile. The surface water dilution weight classification for HRS Table 4-13 was "small to moderate stream." Based on this distance and classification, the site received a potential contamination scoring value of 0.25.

26d. **Sensitive Environments**--The sensitive environments score is the sum of Level I, Level II, and potential contamination sensitive environments.

27. **Targets**--The environmental targets score is the same value as in Item 26d of the Environmental Threat, Surface-Water Pathway section above.

28. **Environmental Threat Score**--The environmental threat score was calculated as the product of the totals for likelihood of release, waste characteristics, and targets, divided by a scaling factor of 82,500.

29. **Watershed Score**--The watershed score is the sum of the total of the drinking water, human food chain, and environmental threat scores.

30. **Surface Water Overland/Flood Migration Score**--The pathway score for the surface-water pathway is the highest score for the watersheds being evaluated. Only one watershed was applicable for evaluation at the Stateline Dump site.

Table 7, which follows, is modeled on HRS Table 4-1, and contains the scores resulting from the use of the Hazard Ranking System for the surface water pathway for the Stateline Dump site.

Table 7
Surface Water Overland/Flood Migration Component Scoresheet

Factor Categories and Factors	Maximum Value	Value Assigned
DRINKING WATER THREAT		
Likelihood of Release		
1. Observed Release	550	550
2. Potential to Release by Overland Flow		
2a. Containment	10	
2b. Runoff	25	
2c. Distance to Surface Water	25	
2d. Potential to Release by Overland Flow (lines 2a x [2b + 2c])	500	
3. Potential to Release by Flood		
3a. Containment (Flood)	10	
3b. Flood Frequency	50	
3c. Potential to Release by Flood (lines 3a x 3b)	500	
4. Potential to Release (lines 2d + 3c, subject to a maximum of 500)	500	
5. Likelihood of Release (higher of lines 1 and 4)	550	550
Waste Characteristics		
6. Toxicity/Persistence	--^{a}	10,000
7. Hazardous Waste Quantity	--^{a}	1
8. Waste Characteristics	100	10
Targets		
9. Nearest Intake	50	
10. Population		
10a. Level I Concentrations	--^{b}	
10b. Level II Concentrations	--^{b}	
10c. Potential Contamination	--^{b}	
10d. Population(lines 10a + 10b + 10c)	--^{b}	
11. Resources	5	5
12. Targets (lines 9 + 10d + 11)	--^{b}	5

Table 7
Surface Water Overland/Flood Migration Component Scoresheet

Factor Categories and Factors	Maximum Value	Value Assigned
DRINKING WATER THREAT (Continued)		
Drinking Water Threat Score		
13. Drinking Water Threat Score ([lines 5 x 8 x 12]/82,500, subject to a maximum of 100)	100	0.35
HUMAN FOOD CHAIN THREAT		
Likelihood of Release		
14. Likelihood of Release (same value as line 5)	550	550
Waste Characteristics		
15. Toxicity/Persistence/Bioaccumulation	--[a]	5 x 10^8
16. Hazardous Waste Quantity	--[a]	1
17. Waste Characteristics	1,000	100
Targets		
18. Food Chain Individual	50	
19. Population		
19a. Level I Concentrations	--[b]	
19b. Level II Concentrations	--[b]	
19c. Potential Human Food Chain	--[b]	
Contamination	--[b]	
19d. Population (lines 19a + 19b + 19c)		
20. Targets (lines 18 + 19d)	--[b]	
Human Food Chain Threat Score		
21. Human Food Chain Threat Score ([lines 14 x 17 x 20]/82,500, subject to a maximum of 100)	100	0
ENVIRONMENTAL THREAT		
Likelihood of Release		
22. Likelihood of Release (same value as line 5)	550	550
Waste Characteristics		
23. Ecosystem Toxicity/Persistence/Bioaccumulation	--[a]	5 x 10^6

Table 7
Surface Water Overland/Flood Migration Component Scoresheet

Factor Categories and Factors	Maximum Value	Value Assigned	
ENVIRONMENTAL THREAT (Continued)			
24. Hazardous Waste Quantity	--[a]	1	
25. Waste Characteristics	1,000		32
Targets			
26. Sensitive Environments			
26a. Level I Concentrations	--[b]	0	
26b. Level II Concentrations	--[b]	25	
26c. Potential Contamination	--[b]	0.25	
26d. Sensitive Environments (lines 26a + 26b + 26c)	--[b]	25.25	
27. Targets (value from line 26d)	--[b]		25.25
Environmental Threat Score			
28. Environmental Threat Score ([lines 22 x 25 x 27]/82,500, subject to a maximum of 60)	60		5
SURFACE WATER OVERLAND/FLOOD MIGRATION COMPONENT SCORE FOR A WATERSHED			
29. Watershed Score[c] (lines 13 + 21 + 28, subject to a maximum of 100)	100		5
SURFACE WATER OVERLAND/FLOOD MIGRATION CONPONENT SCORE			
30. Component Score (S_{of})[c] (highest score from line 29 for all watersheds evaluated, subject to a maximum of 100)	100		5

[a] Maximum value applies to waste characteristics category.
[b] Maximum value not applicable.
[c] Do not round to nearest integer.

SOIL EXPOSURE PATHWAY

This section is organized to correspond with items on the HRS Soil Exposure Pathway Scoresheet, referenced as HRS Table 5-1. Itemized numbers present in this section are consistent with the scoring sheet. The following paragraph provides qualitative information about the areas of observed contamination that comprise the soil exposure pathway.

The soil exposure pathway is based on areas of observed contamination. That is, areas where sampling locations indicate that a hazardous substance attributable to the site is present at a concentration significantly above background levels for the site, **and** that this hazardous substance, if not present at the surface, is covered by 2 feet or less of cover material. For contaminated soil, sampling locations with observed contamination from the site and the area lying between such locations are considered to be areas of observed contamination. In addition, for an area of observed contamination, only those hazardous substances that meet the criteria for an observed release are evaluated in the soil exposure pathway.

The soil exposure pathway is evaluated for both the resident population threat and the nearby population threat.

RESIDENT POPULATION THREAT, SOIL EXPOSURE PATHWAY

The resident population threat is evaluated if there is observed contamination in one of the following areas:

- Within the property boundary of a residence, school, or day care center and within 200 feet of the respective residence, school, or day care center
- Within a workplace property boundary and within 200 feet of a workplace area
- Within the boundaries of a resource specified in Section 5.1.3.4 of the revised HRS
- Within the boundaries of a terrestrial sensitive environment specified in Section 5.1.3.5.

The resident population threat was evaluated for the Stateline Dump site based on containing an area of contamination within the boundaries of a resource.

Likelihood of Release

1. **Likelihood of Release**--An area of observed contamination was defined at the Stateline Dump site at the location of the unauthorized dump area. This dump area is estimated to occupy an area of 300 feet by 250 feet (Weston, 1988).

An observed release can be based on either direct observation or chemical analysis. Observed contamination was based on chemical analysis data for seven inorganic substances. Refer to Table 1 for soil concentration data. For additional information on establishment of an observed release, refer to the discussion under the Identification of Hazardous Substances Available to a Pathway section of this document.

Waste Characteristics

2. **Toxicity**--Seven inorganic substances were evaluated for toxicity for the soil exposure pathway. Only those substances that represent an observed release to the soil are eligible for evaluation in the soil exposure pathway. These substances are presented in Table 2 and include arsenic, copper, iron, lead, zinc, chromium, and nickel.

   In the soil exposure pathway, toxicity is evaluated for human toxicity following the same hierarchy and procedures as for the groundwater pathway. Refer to Item 4 of the Groundwater Pathway section of this document for additional details on toxicity scoring.

   For hazardous substances with applicable toxicity data, the substance with the highest toxicity assigned factor value is used for scoring. Four substances tied for the highest soil exposure toxicity assigned factor value score. These substances include: arsenic, lead, chromium, and nickel. Chemical-specific toxicity information is referenced in Table 2.

3. **Hazardous Waste Quantity**--The area of contamination applicable to this pathway is the 0.5-acre unauthorized disposal area. It has been estimated that 16,500 cubic yards of refuse are present within this area of observed contamination (CH2M HILL, 1990). The hazardous waste quantity value was determined from HRS Table 5-2. Using HRS Table 5-2, the area measurement was used under the "landfill" classification. The area used was 75,000 square feet, determined from the area of the unauthorized dumpsite: 250 feet by 300 feet (CH2M HILL, 1990).

4. **Waste Characteristics**--The waste characteristics category value was determined from the product of the toxicity value and the hazardous waste quantity value. The product, calculated to be 10,000, was then used to obtain a factor value from HRS Table 2-7.

Targets

5. **Resident Individual**--To score under this factor, a person would be required to live on, or attend school or day care on a property with an area of observed contamination, and whose residence, school, or day care center is on or within 200 feet of the area of observed contamination. The resident individual also

would have to be subject to Level I or Level II concentrations of contaminants. There is no person at the Stateline Dump site who qualifies as a resident individual.

6. **Resident Population**--To score under this factor, people would be required to live on property with an area of observed contamination. There are no people living on the area of observed contamination at the Stateline Dump site.

7. **Workers**--This factor is scored based on the number of people who work on a property with an area of observed contamination, and whose workplace area is on or within 200 feet of the area of observed contamination. There are no people who work on the area of observed contamination at the Stateline Dump site.

8. **Resources**--The score for the resources factor is based on the presence of commercial agriculture at the area of observed contamination. This determination is conservatively based on the predominant land use in the vicinity of the site. Predominant land use includes irrigated and dryland agriculture and rangeland for cattle (CH2M HILL, 1990). The score given for this factor may be overly conservative since the area of observed contamination is fenced and not currently farmed for commercial agriculture.

9. **Terrestrial Sensitive Environments**--This factor is scored based on an assigned value from HRS Table 5-5, which provides scoring for numerous sensitive environments categories, as applicable to the area of observed contamination. The area of observed contamination at the site is not a terrestrial sensitive environment, as listed on HRS Table 5-5.

10. **Targets**--The targets category value was calculated as the sum of the following values: resident individual, resident population, workers, resources, and terrestrial sensitive environments.

11. **Resident Population Threat Score**--This score was calculated as the product of the values for likelihood of release, waste characteristics, and targets.

NEARBY POPULATION THREAT--SOIL EXPOSURE PATHWAY

Likelihood of Release

12. **Attractiveness/Accessibility**--A value from HRS Table 5-6 is assigned for attractiveness/accessibility to the area of observed contamination. The category of "Surrounded by maintained fence or combination of maintained fence and natural barriers" was selected as appropriate to the area of observed contamination at the site.

13. **Area of Contamination**--This is scored based on the actual area of the area of observed contamination, which is 75,000 square feet (see also Item 3 of the Redident Population Threat, Soil Exposure Pathway section of this document). This area was then applied to HRS Table 5-7 to obtain an assigned value for the area of contamination.

14. **Likelihood of Exposure**--The assigned value for likelihood of release was obtained from HRS Table 5-8, which is a matrix combining area of contamination and likelihood of exposure.

Waste Characteristics

15. **Toxicity**--Toxicity for the nearby threat is evaluated following the same procedure as for the residential threat. Refer to Item 2 of the Residential Population Threat, Soil Exposure Pathway section of this document for additional details on toxicity scoring.

16. **Hazardous Waste Quantity**--The area of contamination applicable to this pathway is the 0.5-acre unauthorized disposal area. It has been estimated that 16,500 cubic yards of refuse are present within this area of observed contamination (Literature Search Report, Expanded Site Investigation, January 1990). The hazardous waste quantity value was determined from HRS Table 5-2. Using Table 5-2, the area measurement was applied to the "landfill" classification. The area used was 75,000 square feet, determined from the area of the unauthorized dumpsite: 250 feet by 300 feet (CH2M HILL, 1990).

17. **Waste Characteristics**--The waste characteristics category value was determined from the product of the toxicity value and the hazardous waste quantity value. The product, calculated to be 10,000, was then used to obtain a factor value from HRS Table 2-7.

Targets

18. **Nearby Individual**--This factor is based either on the nearest resident individual (see also Item 5 under the Resident Population Threat, Soil Exposure Pathway section above), or the shortest overland distance an individual would travel from a residence or school to the nearest area of observed contamination for the site. This distance was used to obtain a factor value from HRS Table 5-9.

    The nearest resident is approximately 1,800 feet, or 0.34 mile, west of the site (CH2M HILL, 1990). This distance corresponds with the category of "greater than 1/4 to 1 mile" from HRS Table 5-9.

19. **Population within 1 Mile**--This factor sums the number of people living within the following distance rings from the site: greater than 0 to 1/4 mile; greater

than 1/4 to 1/2 mile; and greater than 1/2 to 1 mile. Distance-weighted populations were obtained from HRS Table 5-10.

There are five residents living within 3 miles of the site (CH2M HILL, 1990). The nearest resident is 0.34 mile west of the site (CH2M HILL, 1990). An overly conservative estimate of nearest population was determined based on the scenario of five residents living within 1 mile of the site. A conservative estimate of 5 persons dwelling per household was used to calculate residential population. The following chart details the numbers used to calculate the nearby population.

Distance Category	Number of People	HRS Value from Table 5-10
>0 to 1/4 mile	0	0
>1/4 to 1/2 mile	5	0.05
>1/2 to 1 mile	25	0.1
TOTAL		0.15

20. **Targets**--The targets category value was calculated as the sum of the two factors: nearby individual and the population within 1 mile.

21. **Nearby Population Threat Score**--This score was calculated as the product of the values for likelihood of release, waste characteristics, and targets.

22. **Soil Exposure Pathway Score**--The pathway score was calculated as the sum of the residential and nearby population threats divided by a scaling factor of 82,500.

Table 8, which follows, is modeled on HRS Table 5-1, and contains the scores resulting from the use of the Hazard Ranking System for the soil exposure pathway for the Stateline Dump site.

Table 8
Soil Exposure Pathway Scoresheet

Factor Categories and Factors	Maximum Value	Value Assigned
RESIDENT POPULATION THREAT		
Likelihood of Exposure		
1. Likelihood of Exposure	550	550
Waste Characteristics		
2. Toxicity	--[a]	10,000
3. Hazardous Waste Quantity	--[a]	1
4. Waste Characteristics	100	10
Targets		
5. Resident Individual	50	
6. Resident Population		
6a. Level I Concentrations	--[b]	
6b. Level II Concentrations	--[b]	
6c. Resident Population (lines 6a + 6b)	--[b]	
7. Workers	15	
8. Resources	5	
9. Terrestrial Sensitive Environments	--[c]	
10. Targets (lines 5 + 6c + 7 + 8 + 9)	--[b]	5
Resident Population Threat Score		
11. Resident Population Threat (lines 1 x 4 x 10)	--[b]	27,500
NEARBY POPULATION THREAT		
Likelihood of Exposure		
12. Attractiveness/Accessibility	100	5
13. Area of Contamination	100	20
14. Likelihood of Exposure	500	5
Waste Characteristics		
15. Toxicity	--[a]	10,000
16. Hazardous Waste Quantity	--[a]	1
17. Waste Characteristics	100	10

Table 8
Soil Exposure Pathway Scoresheet

Factor Categories and Factors	Maximum Value	Value Assigned
NEARBY POPULATION THREAT (Continued)		
Targets		
18. Nearby Individual	1	0
19. Population Within 1 Mile	--^{b}	0.15
20. Targets (lines 18 + 19)	--^{b}	0.15
Nearby Population Threat Score		
21. Nearby Population Threat (lines 14 x 17 x 20)	--^{b}	8
SOIL EXPOSURE PATHWAY SCORE		
22. Soil Exposure Pathway Score^d (S_a), (lines [11 + 21] + 82,500, subject to a maximum of 100)	100	0.35

[a] Maximum value applies to waste characteristics category.
[b] Maximum value not applicable.
[c] No specific maximum value applies to factor. However, pathway score based solely on terrestrial sensitive environments is limited to maximum of 60.
[d] Do not round to nearest integer.

CALCULATION OF HRS SITE SCORE

Final pathway scores for groundwater, surface water, and soil exposure are 0.30, 5, and 0.33, respectively. These pathway scores are combined using a root-mean-square equation to determine the overall HRS score for the Stateline Dump site.

The HRS score for the Stateline Dump site was calculated to be 2.5. This score is 26 points below the 28.5 cutoff score for placement on the Superfund National Priorities List (NPL).

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